

THE MEDICAL TIMES.

MONDAY, MAY 1, 1871.

ORIGINAL LECTURES.

TWO CLINICAL LECTURES

ON CASES OF UNUSUAL VASCULAR MURMURS WITHIN THE CHEST.

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LECTURE II.

GENTLEMEN:—The second case which we propose to study, although not so unusual as the first, nevertheless relates to a physical sign which is generally overlooked, and when noticed is apt to be misunderstood.

Ulrich F., admitted December 16, 1870, is a white male, 47 years old. Was born in Switzerland, and came to America when 30 years old. Is of short stature,—about 5 ft. 6 in.,—swarthy complexion, bilioso-sanguine temperament. Was married for eight years, but is now a widower. Had two children; both died in infancy. Father died of phthisis at 50; his mother—of what cause he does not know—at 63. One brother lives in France, in good health. His occupation was that of a laborer and farm-hand; ploughed and did heavy work. During the late civil war he served for nine months in the cavalry. Never had syphilis, nor any pulmonary complaint. The last half of his term of military service he says that he had “rheumatism” of the thighs and legs, “which were all black and blue.” After leaving the army, his health was good until April, 1870, when he took relapsing fever, and was treated in this hospital, where he remained for two months.

He entered again December 16, on account of weakness and shortness of breath, when he was found to have acute bronchitis, and, apparently, a slight enlargement of the heart. For two weeks after admission he daily expectorated about half an ounce of pure blood. From all these symptoms he was gradually relieved, appeared in very good condition, and rather gained than lost flesh.

January 6.—A physical examination of the chest was made, of which the following note was taken: “A blowing murmur is distinctly heard half an inch below the centre of the left clavicle, upon the central portion of the bone, and under its external third. Its maximum loudness is under the middle of the outer third of the clavicle. It is loud, high-pitched, slightly rough, and synchronous with the arterial pulse.” On the 11th, a more careful examination gave the following results: “Aortic, pulmonic, cardiac, carotid, and jugular sounds are all natural. The murmur under the outer third of the left clavicle is greatly intensified by a full inspiration, but is weakened by complete expiration. The respiratory murmur is scarcely audible above the second intercostal space, except quite near to the sternum. Even forced inspiration fails to develop a distinct respiratory murmur at the point where the vascular murmur is loudest. Within the same limits percussion-resonance is decidedly diminished. At a corresponding point of the right side percussion and respiration are normally loud and clear, and there is no arterial murmur.

“The development of the base of the neck is symmetrical. The left carotid pulsates a little more plainly than the right, but the right subclavian more visibly than the left. Pressure upon the left subclavian behind the clavicle develops a thrill. Precordial dulness is slightly increased, but the impulse is normal. Auscultation behind shows that the respiratory murmur is feebler towards the outer limit of the left apex than at the corresponding point of the right side, but is otherwise normal. On causing the patient to place the left hand on the top of his head, the subclavian murmur grows much louder; but when the arm is slowly brought down to the side, the

murmur gradually diminishes. Pressure upon the upper part of the brachial artery does not diminish it. The radial artery at the left wrist is smaller and more tense than the corresponding vessel of the right side.”

This case may be summarily presented as follows: A man of middle age, strong frame, and laborious habits, lost his father by phthisis. His own health was always good until, in April last, he had an attack of relapsing fever, from which he entirely recovered. In December, however, he caught cold, had a mild bronchitis, and suffered frequent attacks of hæmoptysis, which were at the time, and in the absence of any other discoverable cause, attributed to a slight hypertrophy of the heart, coupled with bronchial congestion. The bleeding ceased, the cough nearly disappeared, and the strength returned, but some dyspnoea on exertion continued. While we were searching for the cause of this symptom, consolidation of the outer part of the upper lobe of the left lung was detected, and where the subclavian artery crosses the first rib a murmur synchronous with the arterial diastole was audible. It was high-pitched, slightly rough, rendered more intense by full inspiration and by raising the hand to the head, but became weaker during inspiration and when the hand hung by the side.

We observe, then, in this case a probable hereditary tendency to phthisis, the occurrence of a febrile disease, which not unfrequently provokes the development of consumption, followed after several months by a bronchitis, during which repeated hemorrhages from the lungs took place, and afterwards the physical signs of solidification of the apex of the left lung. This history and these local phenomena render probable the existence of pulmonary phthisis in its first stage. Now, along with these symptoms and local signs there is another, and a comparatively unusual one,—viz., a murmur in the subclavian artery. It is a peculiar murmur; for at times it is absent altogether, then again is very loud, and also varies in its intensity according to the position of the patient's arm. It is not a blood-murmur; for no similar sound can be detected in the heart, in the carotids, or in the right subclavian artery, nor yet in the veins. It is strictly limited to the spot where the left subclavian artery crosses the first rib, becoming less intense as the stethoscope is removed in any direction from that point.

The greater number of these phenomena suggest very strongly the existence of an aneurism of the left subclavian artery, and such indeed was the first impression made upon my own mind; but when I discovered that the murmur ceased at times, and again increased or diminished according to the position of the left arm, the supposition of an aneurism was no longer tenable. It appeared that the murmur was loudest when the arm was elevated to a vertical position, and that it gradually declined, and at last became very faint, as the limb was brought down to the side; and, further, it was *increased by full inspiration, and diminished by complete expiration*. Consequently, it seemed probable that some pressure upon the artery occasioned the murmur. Considering the solid condition of the upper and outer portion of the lung, it was easy to comprehend how a full inspiratory act, by pressing the solidified lung upwards against the artery, might interfere with the circulation through it, and occasion a murmur. And to this opinion I am disposed to adhere.

But there was another condition under which the murmur was produced: it occurred when the left arm was elevated. Now, this position of the arm, it appears, should have a directly opposite effect, so far as the lung is concerned, from that of a full inspiratory act; for, instead of pressing the solidified lung against the artery,

it would rather tend to separate the two from one another by elevating the first rib, and should therefore diminish the murmur so far as that depended upon the cause at first assigned,—i.e., pressure of the lung. But while the elevation of the arm and of the first rib tended to relieve the artery from pressure from below, it evidently had the effect of bringing the first rib into closer proximity with the clavicle, and, therefore, of subjecting the artery to compression between those two bones.

It seems probable, therefore, that in the case we are studying two murmurs are heard at the same point upon the surface of the chest, one of which is attributable to pressure by the condensed lung upon the subclavian artery before it emerges from the chest, and the other to the pressure on the vessel of the clavicle and first rib, after the artery has passed out of the thoracic cavity.

In further illustration of this subject, I shall offer you a sketch of the history of subclavian murmurs as they have been observed by others.

Dr. Kirkes and Dr. Sibson appear to have been the first to draw attention to the subject; but the earliest paper relating to it which I have seen was published by Dr. Thorburn, in 1859.* He observed it in seven or eight cases which were alike in no particular, with regard to the existence of tubercle, of cardiac or of aortic disease, and in one case at least he found the murmur upon the right as well as on the left side. After him followed Dr. B. W. Richardson, to whom medical science is so deeply indebted for many original observations and ingenious inventions. In his *Clinical Essays*, published in 1862, this eminent physician thoroughly investigated the curious and novel phenomenon. He found that it rarely occurred in females, and that the youngest person in whom he met with it was eighteen years old. It was observed most frequently in chronic bronchial affections, next in phthisis, then in anæmia, and finally in diseases of the heart, but also in numerous instances of persons who were in excellent health. The greater number of cases occurred in men who used their arms vigorously, and especially in cabinet-makers, carpenters, and sawyers. In one class of cases it was frequently found by him, as it had been by Kirkes and Sibson, and as we observe it in the patient whose case suggested these remarks,—viz., where there was an upward pressure on the subclavian artery by a lung consolidated by tubercle or by broncho-pneumonic inflammation; and in them, as in our own case, the murmur was intensified by full inspiration. Indeed, Dr. R. justly regarded this symptom as a sign of phthisis of the apex in its early stage, and, therefore, as possessing a certain practical importance. The other class of cases—the largest class, as has been stated—consisted of persons who were free from pulmonary disease, but who followed trades which require a vigorous exertion of the muscles that move the upper extremities, and in whom, therefore, Dr. Richardson inferred, the subclavian muscles attained an unusual development. In this judgment subsequent observation confirmed him, for in 1868 he declared,† “I believe there is not a working carpenter, joiner, or cabinet-maker living in whom the murmur may not be detected. The fact extends also to men of other pursuits. Among the wealthier classes—among those who ride daily on horseback and in those who drive—it is almost certainly present. The nature of the pressure in these cases is, I think, very simple. The pressure is exerted on the artery by the subclavius muscle; for when the

murmur is best marked it can always be destroyed by so changing the position of the arm as to relax the subclavius.” It was objected to this exclusive view by Dr. Thomas Palmer‡ that the diminution of the calibre of the artery from below, by the elevation of the first rib, is a much more natural and probable cause of the murmur; and he points out that in all cases the murmur is intensified by full inspiration, which, of course, elevates the first rib, and tends to compress the artery against the clavicle. It is further to be observed that the existence of a groove in the first rib for holding the artery proves its liability to pressure by the clavicle; and the curved course of the vessel of the left side, as compared with the straight direction of the right subclavian, also suggests the greater probability of its generating a murmur under a comparatively slight pressure.

From this short summary of the phenomena and rationale of subclavian murmurs it is evident that too much importance should not be attached to them as indications of consolidation of the apex of the lung, and, in so far, as signs of phthisis. More particularly is this true of cases in which the sound is developed by raising the arm, while it is absent when the arm hangs at the side. The only cases in which its presence need be taken into the calculation of probabilities respecting this disease are those in which the murmur is developed by a full inspiration rather than by a change in the position of the arm.

A murmur in the subclavian may, especially if it be loud, suggest the existence of an aneurism in that artery. A comparison of the phenomena in the two cases will place them in strong contrast. Dr. Richardson has fully stated the elements of this diagnosis, of which the following is a summary: In aneurism the murmur is fixed in one spot, is unchanged by respiration, by pressure with the stethoscope, and by movements of the arm. Its percussion dulness is independent of consolidation of the lung; its fremitus, if any, is permanent; it is usually attended with dyspnoea, and is always confined to one side. Subclavian murmur, on the other hand, changes place and quality, and even disappears by change of posture; is modified by respiration, by pressure, and position of the arm; is often heard under both clavicles, and is not necessarily or constantly accompanied either by fremitus or by dyspnoea. Percussion dulness, if any, is attended with other signs of lung-disease.

Before quitting the discussion of subclavian murmurs, I may briefly allude to another sound, which sometimes has a similar interest and significance. Many years ago Dr. Latham§ called attention to a gentle bellows-murmur which he had observed “either in those who were undeniably consumptive, or in those who were suspected of being so,” and which was heard near the junction of the second left rib with the sternum,—that is to say, over the trunk of the pulmonary artery. In 1859, Dr. Da Costa|| published and analyzed a number of cases in which this murmur was proved to be due to various causes of compression of the pulmonary artery, and chief among them tuberculous consumption. Thus it appears that in addition to the more usual physical signs of that disease we should not neglect those which are the effect of pressure by the consolidated lung, either upon the subclavian or on the pulmonary artery.

With these general remarks I will offer you an opportunity of hearing the subclavian murmur in several patients, some of whom are tuberculous, while others have no disease whatever of the lung.

* *British Medical Journal*, June 18, 1859. A recent notice of it by the same author is contained in a paper “On Vaso-Respiratory Physical Signs,” *Manchester Medical and Surgical Reports*, i. 94.

† *Medical Times and Gazette*, October, 1868, p. 443.

‡ *Lancet*, April, 1864, p. 379; *ibid.*, September, 1868, p. 306.
§ Lectures, etc. on Diseases of the Heart, Phila., 1847, p. 45.
|| *Amer. Jour. Med. Sci.*, January, 1859, p. 119.

ON THE PATHOLOGY, DIAGNOSIS, AND PROGNOSIS OF THE DIFFERENT FORMS OF BRIGHT'S DISEASE OF THE KIDNEY.

ILLUSTRATED BY SELECTED CASES.

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It would scarcely seem necessary, at the present day, to indicate the class of diseases usually included under the term Bright's Disease of the Kidney. Yet, as authors differ as to what should be thus included, it is not unreasonable to suppose that practitioners less fortunate in opportunity of observation and research should occasionally be uncertain as to the scope of the term. Thus, of modern observers, Virchow bases his divisions of Bright's disease upon the special tissue involved. The term parenchymatous nephritis is used when the tubules are the particular seat, amyloid degeneration when the blood-vessels are involved, and cirrhosis when the disease affects the interstitial substance or so-called stroma of the kidney. With him, also, fatty degeneration of the epithelium of the tubules, always a chronic state, may be either primary, or secondary, *i.e.*, "a later stage, a termination" of the parenchymatous nephritis.* He also says "the kidney, whose epithelium has passed into a state of fatty degeneration, nearly always shrivels up, and the result is a permanent atrophy;"† which, if succeeding the secondary fatty degeneration, would be a third stage of parenchymatous nephritis.

Similarly founded is the classification of Dr. Dickinson, of London, who to the first of the forms referred to, gives the name tubal nephritis, to the second depurative, waxy, or amyloid disease, and to the third granular degeneration, which, according to this author, is never the termination of the acute tubal nephritis.

Dr. Aitken, somewhat similarly, makes parenchymatous inflammation, affecting the tubules, and interstitial inflammation where the stroma is involved, but describes also the large white kidney, the small contracted kidney, fatty and amyloid degenerations, and certain mixed forms.

Dr. Roberts, of Manchester, divides Bright's disease into the acute and chronic forms, further subdividing the latter into the smooth white kidney, the granular red kidney, and the lardaceous or waxy kidney.

Dr. T. Grainger Stewart, whose descriptions of the pathological appearances of the different forms are an excellent guide, classifies Bright's disease as follows:

1. The inflammatory form, of which there are three stages—
 - a. That of inflammation; b. Fatty transformation; c. Atrophy.
 2. The waxy or amyloid form, of which there are also three stages—
 - a. Degeneration of vessels; b. Secondary changes in the tubes; c. Atrophy.
 3. The cirrhotic, contracting, or gouty form.
- Dr. Beale describes five conditions: 1. The enlarged and acutely-congested kidney of acute Bright's disease; 2. The large, white, fatty kidney; 3. The chronically-congested and wasting kidney; 4. The fatty contracting kidney; 5. The albuminoid or waxy kidney. The last four are chronic states.

Dr. Basham adopts a similar classification, omitting, however, the fatty contracting kidney, and adding the gouty contracted kidney, which he considers of sufficient importance to be separated from the granular contracted kidney, though the chief difference seems to consist in the presence of streaks of urate of soda within and without the tubules, and in its occurrence in

a gouty subject. Dr. Basham also considers this deposit as the cause of the condition of the kidney, and not merely a concomitant. He includes these latter conditions under the term chronic *nephritis*, an unfortunate error, since in his own descriptions he admits them to be not all inflammatory in their origin.

Singularly, Dr. Harley restricts the name Bright's disease to acute nephritis, whether traumatic, idiopathic, or scarlatinal, which, he says, besides being the condition most frequently met with, was that with which Bright was most familiar.

Dr. Da Costa (Medical Diagnosis) treats of acute and chronic Bright's disease, but separates from acute Bright's disease the form of acute nephritis, characterized by usually affecting one kidney, much greater pain and tenderness in the lumbar region, retraction of the testicle, higher degree of febrile action, and bloody urine, but little albumen. Under acute Bright's disease, he includes scarlatinal nephritis and the similar condition resulting from exposure to cold and generally affecting both kidneys. Under chronic Bright's disease, the same author places the large fatty kidney "pre-eminently Bright's disease," the enlarged chronically-inflamed kidney (large white kidney of the English), the waxy kidney, and, finally, the small contracted kidney.

In consequence of this variety of classification, it is evidently important that each writer should primarily present his own, that he may be clearly understood, though it is also much to be regretted that uniformity cannot be secured.

We would, accordingly, continue the term Bright's disease, which, indeed, we hope will always be retained as a generic term, and make of the conditions it includes two divisions,—the acute and chronic.

In the former we would place all forms of acute inflammation attended by albuminuria, including the acute nephritis of Da Costa. Under chronic Bright's disease we would include the fatty kidney, the granular chronically-contracted kidney, the lardaceous, albuminoid, or waxy kidney, and certain mixed forms. This is the classification of the Royal College of Physicians of London, also about to be adopted by the American Medical Association; and it is entirely consistent with the pathology of the disease. It should be stated that Dr. Tanner, in his text-book on "The Practice of Medicine," also adopts the classification of the Royal College of Physicians. The addition of the *mixed* forms involves no inconsistency with the nomenclature adopted by these authoritative bodies, and is, on the other hand, we believe, necessitated by a study of the pathology.

I. ACUTE BRIGHT'S DISEASE.

SYNONYMS, *acute albuminuria, acute desquamative nephritis, acute renal dropsy, acute nephritis, acute tubal nephritis, parenchymatous nephritis.*

Pathology.—The appearance of the kidney here differs somewhat with the stage, but that usually noted in the event of death in the true acute stage is that of the acutely-congested organ. There is, in the first place, more blood, and more of the cellular element in the tubules, as well as additional free granular matter in and between the tubules. There must, therefore, be increased size and increased weight. The kidney may properly be spoken of as swollen. Again, when the capsule is stripped off, as it is with facility, the exterior of the kidney is seen to be mottled, from the presence of red vascular points, while its general color is dark or purplish, though in different degrees. On section, the convoluted secreting structure, both cortical and interpyramidal, is seen to be increased in extent. The Malpighian bodies may be selected with the naked eye from surrounding tissue on account of their prominence and dark color, and the vessels are generally visible from their congestion. The latter are, however, also separated

* Cellular Pathology, Am. ed., Chance's Translation, 1863, p. 393.
† *Ibid.*, p. 393 a. f.

by a material of lighter color, which will prove to be the altered tubules. The cones of straight tubules are generally darker in color than the convoluted portion, but here, also, the darker congested vessels are separated by the lighter lines of the tubules.

Microscopically, the points thus described are simply rendered more distinct by a low power, but to a power of four hundred diameters, the changes are found to be chiefly in the tubules and their dilated terminations the Bowman's capsules, and in the cells lining these. The free cells, which will be noted floating at the edge of the section, will be found enlarged, and granular in varying degrees, some being perfect compound granule-cells, while others contain but a few granules. The nucleus of the cell is obscured in varying degree, and in proportion to the amount of granular matter present in the cells. Many blood-corpuscles and much free granular matter will also be found thus floating. At a stage which would, however, probably represent a transition between the acutely-congested kidney and the chronic, into which it often merges, the cells will contain a few oil-globules, while free oil may also be noted. But when these elements are copiously present we have the fatty stage, which is chronic.

But to return to the tubules. These are wider than in health, because of the enlarged granular cells, the blood-corpuscles which passed by rupture or otherwise into them, and free granular matter. From the varying quantity of these elements, the tubules are also in varying degrees opaque, and the limitary boundary of the cells more or less completely obscured; the cells are pushed into one another, as it were, and become continuous. When the cells are very numerous and granular, and the free granular matter abundant, choking up the tubules, the latter are quite dark and opaque, appearing simply granular, and no cells can be made out. The Malpighian bodies exhibit a similar appearance, though perhaps relatively darker, from the presence of the blood, while their walls, as well as those of the tubes, are often thickened, though scarcely more opaque, as is alleged by some. Again, more particularly in the straight tubes of the pyramids, some tubules are unaffected, and contain the lining cells in normal appearance.

Clinical History and Diagnosis.—These, in brief, are the pathological appearances. Let us consider, now, the symptoms and diagnosis. After exposure to cold and moisture, particularly during copious perspiration in an adult, or after scarlatina in a child, the patient is seized with a *chill*, followed by *fever*, more usually moderate, coincidently with which is noted lumbar pain, with frequent disposition to micturition, which is only partially successful. The little urine passed is usually smoky in hue, since the reaction is commonly acid; but should the urine be alkaline, it will be bright red. Both conditions are due to the presence of blood which has passed from the capillaries to the tubules by rupture, but possibly, also, by a "wandering" through the membranous partition. Very soon, also, or sometimes even before the other symptoms present themselves, dropsy appears; is perhaps, though not necessarily, first noticed about the eyes, but rapidly spreads to the face and lower extremities, and there may even be œdema of the arms, hands, and body. Enormous œdema of the prepuce and scrotum often embarrass the case, the former obstructing the flow of urine, and the latter causing sloughing. Abdominal dropsy may also be present. All these symptoms may, however, be induced by other causes, though they are of themselves not without significance.

Microscopic and chemical examination of the urine, however, gives us the crucial test, and by this aid the diagnosis is rendered easy, even without the symptoms named. As stated, the urine is usually acid, and pre-

sents a dark or smoky hue. Its specific gravity is high, from the presence of blood, generally above 1020, often approaching 1030, and a copious precipitate of albumen takes place on the addition of nitric acid or the application of heat; the urine is indeed sometimes rendered almost solid by the tests. The *casts* are, however, most distinctive. These are of the epithelial and granular kind, and blood-casts. The fibrinous material of which the mould is formed has entangled whatever happened to be there at the time, and it has been stated that epithelium, blood, and granular matter are present in the tubes in this condition. Hence this sort of cast. Again, numerous blood-corpuscles and free epithelial cells are found floating in the field. The latter exist singly and in aggregations, and often they are seen forming a solid cylindrical mould of the tubule, without, apparently, presenting any limitary membrane of the fibrinous substance to which the mould is usually primarily due. The epithelial and granular casts may, however, be found in other conditions of the kidney, but *blood-casts* seldom. Uric acid deposits also commonly attend, and are detected by the microscope, but they are not constantly present. Oxalates may also be found, but there is nothing distinctive in their presence.

It must be recollected that all these phenomena and signs may appear in a chronic case in which an acute attack has supervened. They are, nevertheless, phenomena of acute nephritis; but if the practitioner is not familiar with the previous condition of the case, he may err, and give his prognosis accordingly.

For the *prognosis* of acute Bright's disease, whether scarlatinal or from exposure, is favorable, and recoveries are frequent. Much may be accomplished by a judicious treatment; but we must always be guarded, for many insidious causes may produce sudden death. Thus, uræmia may supervene, and at a time when we have reason to believe our patient is convalescent.

For example, a child of about five years had an imperfectly-developed attack of scarlatina, which was considered simple sore throat, and he was allowed to go out of the house in winter weather. Dropsy supervened, and the mother carried him to a homœopath, who failed to appreciate the condition or its cause. He prescribed, however, directing the child to return. He did so several times, growing constantly more œdematous. The writer was finally asked to visit him, when he found enormous œdema throughout the body. A little examination satisfied him as to its cause. The smoky urine was highly albuminous, almost solidified on use of heat and NO_3 , and contained blood and epithelial casts, with numerous blood-corpuscles. He was placed on appropriate treatment, when the dropsy and albumen diminished. He was a wilful boy, and his indulgent parents again allowed him to be exposed to cold. The dropsy increased, and the albumen as well. So great was the œdema of the prepuce that his urine had to be drawn, and so difficult the introduction of the catheter that it was finally allowed constantly to remain. The scrotum was also enormously swollen, and sloughing ensued. Under appropriate treatment, however, all these symptoms subsided; the catheter was no longer required, the albumen rapidly diminished, and the quantity of urine was sufficiently abundant. I saw him at 2 P.M. of a Saturday, and believed him to be convalescent, while his mother said that until that day she had not believed his recovery possible, but now realized his improvement. Between five and six of the same evening, after slight vomiting, he became suddenly unconscious. I did not reach him for several hours; but all efforts were unavailing, and he died at one o'clock following. Very careful examination of the mother elicited that he seemed a *little droopy* on the previous day, but was particularly bright on the afternoon in which coma supervened.

Now, here is a case, thought to be convalescent, suddenly dying. Could anything have altered the view taken? Possibly a quantitative analysis of urea, at intervals of two or three days. But in how few instances

is this possible! Of American practitioners, few are qualified to make such analyses, and fewer have time amid the varied and numerous engagements of active practice. Yet until it has been shown that urea is not the poisonous element inducing the coma, its quantitative determination should not be overlooked. It is true that by means of such tables as that of Prof. Houghton,* approximate estimates can be made; and they should not be neglected. Caution in prognosis with regard to individual cases of acute Bright's disease, however, is the moral we desire to point, notwithstanding the fact that the majority recover. So-called uræmia is, then, the condition we are most to fear.

Pulmonary edema may also occur, and the patient is drowned in the excess of his own secretions. Its onset is characterized by shortness of breath, frothy expectoration, and abundant smallish moist râles.

The following brief history also teaches caution to the young pathologist:

A lady in good position was under the care of an eminent and skillful practitioner of this city for diabetes. The urine contained quantities of sugar, but no albumen was present at any time. She finally died, and one of the kidneys was sent to the writer for microscopic examination, the gentleman who made the post-mortem examination having been struck with the apparently increased area of the convoluted portion. I examined it carefully, and found it corresponded in condition, with scarcely an exception, to that already given of the acutely-congested kidney. Here, apparently, were produced, through excessive action alone, all the physical conditions of an inflammatory affection.

In conclusion, acute Bright's disease is easy of diagnosis. The prognosis, with prompt treatment, is generally favorable; but accidents may occur when we least expect them, and teach caution with regard to individual cases. It is reasonable also to suppose that frequent *quantitative* examination for urea, as well as repeated microscopic examination, will give us information which will at once aid us in forming an opinion, and in modifying a treatment which may have become less active on account of apparent improvement.

II. CHRONIC BRIGHT'S DISEASE.

Of the chronic form, three varieties clearly exist,—the fatty, granular, and albuminoid conditions.

A.—The *fatty kidney*, we believe, may originate in two ways:—1st, by a transition of the acute into what is called chronic inflammation, though the inflammation has generally subsided; or, 2d, it may originate primarily as the result of a defective nutrition,—that is, it may be a simple fatty degeneration. This latter is distinguished also from those conditions of fatty change without albuminuria which are found in phthisis, and in intemperance,—in fact, from all cases where there is never albuminous urine.

Pathology.—The fatty kidney is pale or almost white in hue, larger—often much larger—than normal, and often exudes oil in ordinary manipulations, or greases the knife with which it is cut or the paper in which it is wrapped. The capsule is unchanged, and strips off with facility. Its surface is usually smooth, and, notwithstanding its pale appearance, it is often marked with stellate vessels, while the mottled appearance is further contributed to by the presence of opaque yellow points, which are the fatty deposits, and which alternate with the more translucent normal structure. On section, the same pale and dotted appearance is seen in the convoluted structure, while to it is often added a linear arrangement of the opaque portions. The cones of straight tubules are little changed, contrasting as pink with the surrounding convoluted portion. Under a power of

four hundred diameters, the contents of the convoluted tubules, and occasionally the straight tubules of the cones, are found to have undergone complete granular and globular fatty change. The epithelial cells are distended with granules and globules of oil, while free matter of the same kind fills the lumen and interstices, distending the entire calibre of the tube. Often no trace of cells is discernible, but the entire tubule is filled with black opaque granular matter. The Malpighian bodies are the seat of similar change, and, therefore, as well enlarged. It is noted that these oily matters occupy the position of the dots and streaks of opaque matter. At the edge of the section, numerous highly fatty cells, and abundant globules of free oil, are to be seen floating, as well as granular matter of the same composition.

Clinical History and Diagnosis.—Such is the pathological state of the organ. What are the data by which the condition is recognized during life?

If the acute inflammatory affection is prolonged beyond a certain period, somewhat variable, but which may be approximately stated at three months, without much change in the general condition, except, perhaps, a growing debility, the urine exhibits changes, more particularly in its microscopic characters. The bloody or smoky appearance has of course disappeared; the urine is perhaps paler in hue, but the specific gravity is still rather high,—usually from 1015 to 1030. It is still copiously albuminous. By microscopic examination, however, a change will be found to have taken place; instead of the blood-corpuscles, blood- and epithelial casts, these will be found to contain epithelium more or less completely filled with oil-globules, and these will be found also free in the casts from disintegration of the epithelial cells. Where the cast is not obscured by these elements, it will often be found hyaline or structureless, so as to be almost invisible; in fact, the cast is often first detected by a peculiar arrangement of the oil-globules and fatty epithelium, which evidently would not be assumed were they not held in this relation by the fibrinous substance forming the cast. Sometimes—often, indeed—in advanced fatty change the casts are so completely filled with the granules and globules of oil that they appear actually black, like masses of carbon. Floating freely in the urine are also seen numerous fatty cells, with compound granule-cells and free oil.

If the attack do not originate in this way, it is generally most insidious, and the date of its precise beginning is probably never determined. There may be such symptoms as indicate the presence of a hundred temporary disorders, as headache, nausea, indigestion, loss of appetite, and even pain,—much more reasonably attributed to such ailments than to chronic Bright's disease with fatty change.

Again, there may be an attack of bronchitis or erysipelas, typhoid fever, or other affection due to blood-poisoning, from which recovery is slow; or prolonged mental or physical exertion may be followed by unusual consequences. Loss of appetite prolonged, with headache, is, however, significant. If the condition be detected before dropsy appears, which always does present itself some time in the course of this form of chronic Bright's disease, it is because the physician, embarrassed to account for the condition, examines the urine and finds it albuminous; and with a knowledge of the microscopical appearances of the urine from a fatty kidney, the rest is easy. The disease has usually, however, probably been in existence several months before it is discovered.

Prognosis.—Having discovered such a condition to exist, what can we tell our patient? The mode of origin influences somewhat the prognosis, at best unfavorable. If the condition is one growing out of acute

* See Da Costa's Medical Diagnosis, Third Edition, p. 601.

inflammatory disease, recovery may rarely take place, and much may be accomplished by appropriate treatment. But the patient generally dies within the year. This we have unfortunately had opportunity to verify in more than one instance. The result may be from exhaustion, uræmia with coma or convulsions, or both, or it may be from œdema of the lungs. Death from uræmia is, however, less common than in acute Bright's disease, or the form to be next considered. Yet to this usual fatal result it is said there may be exceptions. None have occurred in our own experience. As already stated, when the chronically-fatty kidney ensues after acute nephritis, life may be prolonged several years. Such is Case XI., narrated by Dr. Grainger Stewart on page 29 of his valuable work, illustrating what he describes as the second stage of acute inflammation, but which we would prefer to indicate as chronic Bright's disease with fatty change.

In summary, an opinion should not be too hastily formed, but if, after repeated examinations of urine, the amount of albumen continue large, and oil-casts, fatty epithelium, and free fat persist, and there is also persistent dropsy, the condition is one of fatty kidney, which will probably terminate in death in less than a year after coming under observation.

(To be continued.)

A CASE OF SCIRRHUS OF THE PYLORUS,

WITH REMARKS ON THE ELECTRIC EXCITATION OF THE STOMACH AND THE USE OF THE STOMACH-PUMP IN DILATATION OF THAT ORGAN.

BY WILLIAM PEPPER, M.D.,

Lecturer on Clinical Medicine in the University of Pennsylvania.

WILLIAM L., æt. 52, a brewer by occupation, came under observation in November, 1870. He had, until about a year previously, enjoyed excellent health; had been in the habit of drinking somewhat too freely of malt liquors, but had never experienced any dyspeptic trouble in consequence. In the latter part of 1869, however, he began to be troubled with epigastric uneasiness, with sense of weight after eating, with marked flatulence, and eructations of tasteless, inodorous gas. His bowels, which had previously been regular, also became constipated, requiring the use of powerful purgatives, and subsequently obliging him to aid their action by removing the contents of the rectum by the finger or a spoon. A few months later, vomiting began, and soon became of daily occurrence. The matters vomited consisted merely of food altered in proportion to the length of time which had elapsed since its ingestion. Usually vomiting occurred about three or four hours after eating, though occasionally it would not occur until late in the night. On one occasion only—in June, 1870—blood was vomited; it was in large quantity, of dark color, and granular, like coffee-grounds. Emaciation advanced steadily and rapidly. When first seen, the coloration of the surface was free from any cachectic tint. He had lost forty pounds weight within the previous year. The tongue was moist, slightly furred, and with a fissured surface. The appetite was quite good, though he feared to indulge it, on account of the consequent suffering. There was slight tenderness at the epigastrium, and great discomfort, but no actual pain. On examining him in the recumbent position, the epigastrium was found rather depressed, while a markedly prominent curved ridge, evidently the distended stomach, could be seen crossing the abdomen from the left to the right hypochondrium. The lower border of the stomach reached the level of the umbilicus. No distinct tumor could be detected, though there was a sense of induration at the pyloric end of the stomach. The vomiting and constipation continued as above described. There were no symptoms indicating disease of any other organ than the stomach. He was ordered a tonic mixture of quinia and nitromuriatic acid, powders of pepsin, and a diet of milk and beef-tea.

The effect of this treatment was a temporary gain in strength, with marked relief of the vomiting. Emaciation, however, continued, and the dilatation of the stomach increased.

On December 12, the following note was taken: When lying on the back (about two hours after eating a meal) it was easy to trace the shape of the stomach through the abdominal wall. There was a deep depression, extending from the xiphoid cartilage almost to the umbilicus, with a depth varying with the degree of contraction of the stomach. The stomach was greatly dilated, curving across the abdomen from the left to the right hypochondrium, with its lower border within an inch of the pubes. During the observation, the waves of peristaltic action could be seen sweeping along the stomach, imparting a vermicular movement to the viscus. At the beginning of each act of peristalsis, the contents of the stomach were grasped by the cardiac end of the stomach so as to form a hemispherical prominence in the left hypochondriac region. As the contraction extended, this prominence was carried along the curve of the stomach, the parts behind it becoming successively flattened. When the contents reached the pylorus, it was evident that they were forced against an obstruction there, so that a deep sulcus was produced parallel to and a hand's-breadth below the cartilage of the right ribs. After the effort to force the food through the pylorus was exhausted, a reflux towards the cardiac occurred. Each peristaltic contraction consisted of three separate waves: a short feeble one, then a very powerful one, which was the one causing the phenomena above described, and, finally, a third weak one. These periods of peristaltic action occurred at intervals of one minute, and lasted forty-five seconds. In a few instances the interval was much less, but the succeeding contraction seemed then to be feeble. Percussion over the most prominent part of the stomach during this contraction was tympanitic; as the contents were pushed on and the elevation subsided, the note became humoric, and finally dull. During the interval between the contractions, the whole abdomen became flattened, and it was no longer possible to trace the outlines of the stomach.

Efforts were made to determine the influence of irritation upon the peristalsis of the stomach. When the abdomen was relaxed, and the stomach quiescent, pressing and kneading it seemed to arouse contraction of its walls a little earlier than it would have occurred.

A magneto-electric current of considerable force was then applied by placing one pole on the surface of the abdomen over the cardiac extremity, and the other over the pylorus, or over some point of the greater curvature. Powerful contractions of the left rectus and portions of the oblique muscles on the left side occurred, forcing the contents of the stomach quickly to the pyloric end, and keeping them there as long as the current was maintained. This effect was, however, evidently due chiefly, if not solely, to compression of the cardiac extremity of the stomach by the contracting abdominal muscles; and when the motor point of the left rectus muscle was avoided, so that no contraction of the muscle was induced, the rhythm and force of the peristalsis were not appreciably affected. When a galvanic current (derived from sixteen elements, Stöhrer) was used, with the positive pole over the cardia and the negative pole over the pylorus, no effect was produced so long as the current was unbroken, excepting the development of erythema and papules near the positive pole. When the current was interrupted at rather short intervals, the same absence of effect upon the peristalsis of the stomach was observed.

At this time it was easy to detect a movable, non-sensitive, hard, ovoid nodule at the precise spot where the progress of the contents of the stomach could be seen to be arrested during the gastric peristalsis,—i.e. corresponding to the pyloric orifice.

He still derived some comfort from the use of pepsin, to which bismuth was added. The constipation was more relieved by a mixture of tr. rhei, f3i, and tr. belladonna, grt. xij, morning and evening, than by any other more powerful laxative. The temperature was taken in the left axilla, night and morning, for nearly a month, and found to vary from 97½° to 99°.

On February 20, 1871, he was suffering so greatly from gastric oppression and eructation that recourse was had to the

stomach-pump. He was ordered to breakfast on milk and beef-tea at 6½ A.M.; the contents of the stomach were pumped out at 11 A.M., and the cavity washed out with a pint of warm water. A dinner of beef-tea and milk was then taken at 12½; the stomach-pump was again used at 7 P.M., and a half-pint of milk punch was given at 8.

The fluid obtained the first time amounted to over four pints, and was sour, fermenting, and very offensive. Subsequently the operation was repeated only every other day at 11 A.M., as the contents of the stomach were found to be no longer fermenting or offensive. He expressed himself very greatly relieved by this procedure: the epigastric oppression almost disappeared, and he no longer complained of sour eructations; his bowels became more regular, the stools being nearly normal. He did not, however, gain any strength, and on March 6 began to sink rapidly, expiring March 8. An autopsy was made, at which no lesion of any viscus excepting the stomach was found.

The stomach was greatly enlarged, and occupied an unnatural position, curving from the left hypochondrium down to midway between the umbilicus and the pubes, and thence to the right hypochondrium. Its walls were very greatly thickened, chiefly owing to hypertrophy of the muscular coat. The hypertrophied bands of muscular fibres constituting the longitudinal layer were very plainly visible through the peritoneum, especially along the greater curvature and near the pyloric extremity. The thickness of the walls in some places was not less than ¼ inch. The mucous membrane was rather pale and thickened throughout, and presented no trace of ulceration or of morbid growth: it was coated with much viscid mucus.

The pylorus was the seat of a dense scirrhus growth, obstructing the orifice to such a degree that a small sound only could be passed through it. The tumor formed by this growth was oval in shape, and did not exceed 1½ inch in length by 1 inch in its transverse diameter. On cutting through it, there was found a ring of dense fibroid or scirrhus tissue encircling the pylorus, and somewhat triangular in shape, with the base outward, so that the line of most extreme constriction was a very narrow one. The mucous membrane was thinned and partially destroyed for about one-half inch in extent, corresponding to the most constricted portion of the pylorus.

The line of gastric mucous membrane bounding this affected strip was marked by a row of firm, beady elevations, due to thickening of the membrane itself and infiltration of the sub-mucous layer with fibroid tissue. There was no implication of the duodenum. The stomach contained, in addition to a considerable amount of grumous fluid, a large flattened cake of mixed black and white granular matter, which was moulded to the most dependent portion of the greater curvature of the stomach. This mass was solid and firm. Portions of it were diffused through water and subjected to the action of sulphuretted hydrogen, but without the production of any black deposit. This experiment was performed to determine whether any bismuth was present, since the patient had taken considerable quantities of that drug. When subjected to microscopic examination, the white portions were found to consist of innumerable minute polygonal granules of rice-starch, with a few granules of wheat-starch. The black granules were evidently portions of organic matter,—probably impurities which had been mixed with the rice.

Remarks.—Apart from the ordinary interest attaching to this case as a well-marked illustration of scirrhus of the pylorus, it has a peculiar value as illustrating (a) the peristalsis of the stomach, and (b) the physiological action of electric currents on this organ, and (c) as confirming to a certain extent the value of a new mode of treating dilatation of the stomach.

(a.) There are other cases on record in which the peristaltic contractions of a dilated and hypertrophied stomach have been visible through the abdominal walls. The only one of these which I can now recall is reported at page 550 of the *Physiology of Todd and Bowman*. I am not aware, however, that opportunity has been taken in any such case to accurately study the duration and frequency of the contractions. The charac-

ters of these contractions in a healthy stomach are thus described in Marshall's *Physiology* (American edition, p. 509): "The combined result of these (the contractions of the different fasciculi of the various layers) is a remarkable rotatory or churning motion, which urges the food from the great cul-de-sac along the lower border of the stomach towards the pylorus, and thence back along the upper border to the great cul-de-sac again, and so on; such rotation is said to occupy from one to three minutes (Beaumont)." In the case I have just detailed, the character of the peristaltic movements of the stomach appears to have been altered; for there seemed to be at the beginning of each wave a firm contraction of the cardiac extremity, so that the contents were compressed in the great cul-de-sac, and then the contraction gradually spread from the cardia towards the pylorus, while narrow portions of the stomach successively relaxed in front of the advancing mass of food. Once arrived at the pylorus, the contents were pressed against this opening until the peristaltic energy of the stomach was exhausted, when the entire organ relaxed, and the contents diffused themselves in its cavity. It was also clearly observed that each peristaltic period was made up of three successive waves of contraction, the first and last of which were feeble, while the second was vigorous and prolonged. The duration of the contraction was rather less than the minimum noticed by Beaumont in St. Martin's stomach, being only forty-five seconds or a little over. They recurred with marked regularity at intervals of one minute.

(b.) It appears somewhat strange that, despite the well-known laws of the transmission of faradaic or galvanic currents through the tissues of a living animal, authors of elaborate treatises on medical electricity should continue to speak of the ease and certainty with which the internal organs can be influenced by this agent.

Thus, in one of the most recent publications on this subject,* the statement is made at page 90 "that the stomach, liver, spleen, intestines, kidneys, and the genital apparatus, in both sexes, are directly affected by the current in general electrization. . . . The walls of the abdomen are so yielding that the soft parts beneath can, by sufficient pressure, be brought nearly or quite into coaptation, so as to make a good pathway for the current through organs largely composed of water." And again, at page 472, "The stomach, liver, spleen, kidneys, and intestines may be directly faradized by applying large electrodes with very fine (*sic*) pressure over the back and abdomen, so as to pass the current directly through the organ we wish to affect."

It is indeed true that the stomach, like all other hollow organs whose walls are composed in part of unstriped muscular fibre, will respond actively to the faradaic current when the electrodes are applied directly to the surface of the organ. Thus, marked contraction of both the transverse and longitudinal fibres of the stomach and intestines were observed in the experiments of Weber and Ludwig, where the abdominal cavity of a recently-killed mammal was opened, and the metallic conductors placed directly in contact with various portions of the stomach and intestinal canal. This is merely what would have been expected, and evidently cannot serve as a basis for any such conclusion as that contractions of the stomach can be produced by the application of the conductors of an electric current to the surface of the abdominal walls. Yet these experiments are quoted in numerous works on medical electricity, and in such way in some as to leave the impression on the mind of the ordinary reader that excitation of the abdominal viscera can be directly

* Beard & Rockwell, New York, 1871.

effected. The almost indefinite power of transmission of an electric current along a plane of tissue moistened with saline fluid, as the deeper portions of derm or the subcutaneous tissue, is well known; and no less well is known the difficulty of compelling a current, no matter what may be its strength, to penetrate through various layers of tissue of different consistency and anatomical character.

The influence of this property of the tissues is clearly recognized by Duchenne in many places. Thus, in speaking of the faradization of the stomach, liver, lungs, and heart, he says, "Even when moist rheophores are employed, and whatever may be the strength of the current, the thickness of the thoracic and abdominal parietes will not permit the electric excitation to reach the regions situated within their cavities."* Althaus makes the same statement;† and although several authors omit any positive expression of opinion on this point, none advance any evidence in favor of the view that contractions of any portion of the gastro-intestinal canal can be induced by the application of the conductors of a faradaic or galvanic current to the surface of the abdominal walls. The case which has just been reported confirms in a most marked manner the impossibility of this. The abdominal walls were thin, and it may certainly be held that, by applying the electrodes over two points of the abdominal walls over the prominently dilated stomach, there was more chance of directly influencing that organ than by placing one conductor on the anterior wall of the abdomen, and the other opposite to it on the spine. Yet it has been seen how completely very strong currents, whether faradaic or galvanic, failed to excite contraction of the walls of the stomach, or to modify in any appreciable degree the rhythm of its peristalsis. This has nothing to do with the question of the possibility of in some other way exciting the stomach by faradization. This can, as Duchenne has shown, be accomplished indirectly by applying a metallic conductor to the branches of the pneumogastric nerve in the pharynx, or at any point down the œsophagus, while the other conductor, furnished with a moist sponge, is applied to the epigastrium. When it is desired to limit the action of the current to the stomach, the metallic olive-shaped button, with an insulated stem, may be carried down to the cardia.

I am far from desiring to depreciate the value of electricity as a remedial agent in diseases of the internal organs. Despite the immense amount of unfounded statement and gross exaggeration which is circulated through the credulous community by unprincipled men, there are a sufficient number of well-attested facts to render the whole subject one meriting careful and prolonged examination. But it is all-important that all of those who undertake this investigation and record the results of their work should pursue their observations in a strictly scientific manner, and should employ this valuable agent, electricity, in a uniform and definite manner, and in accordance with its well-ascertained physiological mode of action.

(c.) The next point of interest is in connection with the employment of the stomach-pump in the treatment of this case. The use of this means in the treatment of dilatation of the stomach was introduced by Kussmaul, of Freiburg, in 1867.‡ The case in which he first employed it was one of dilatation of the stomach, probably depending on ulcer near the pylorus, in which there was frequent vomiting, burning in the stomach, emaciation,

and exhaustion. After the stomach was emptied, Vichy water was thrown in, and again removed by the pump, so that the organ was thoroughly washed out. For two days following the relief was complete, and the symptoms, when they returned, were again relieved by a similar procedure at intervals of two or three days. In a fortnight the patient had improved so remarkably that she might be described as a different person. In two months she had gained fifteen pounds in weight, and ultimately recovered completely.

Several other cases have since been recorded in which the employment of this mode of treatment has been followed by permanent cure of dilatation of the stomach. The advantages which are gained by the evacuation of the contents of the stomach at suitable intervals in such cases are evident. The constriction at the pylorus, or merely the dilatation of the stomach, prevents the propulsion of the food into the duodenum, after it has undergone gastric digestion. Its retention, however, is speedily followed by fermentative and putrefactive changes, while at the same time the weight of the accumulating contents constantly increases the dilatation. It is true that frequent vomiting is usually excited, but despite this the stomach constantly contains several pints of acid or fetid fluid. Thus, in the case here recorded, over four pints of fluid were withdrawn from the stomach the first time the pump was used, although the patient had taken but little food for some days preceding, and had vomited occasionally during that time. The presence of this accumulation of indigestible, fermenting fluid must cause great distress by its local action on the gastric mucous membrane, while the general nutrition suffers rapidly and severely, because all food taken into a stomach with such contents must speedily undergo fermentative changes without being at all digested.

A forcible illustration of the inability of the stomach, especially when at all dilated, to completely empty itself by vomiting, and of the danger of allowing an accumulation of undigested food to remain in its cavity for a long time, is seen in the formation of the remarkable cake of rice-flour found in my patient's stomach. This had probably existed for a considerable time, and its formation would certainly have been prevented by the earlier employment of the stomach-pump.

In cases of scirrhus of the pylorus this treatment can of course only be palliative; and yet in many patients with that disease I am satisfied that several of the worst and most annoying symptoms depend on the constant presence in the stomach of fermenting and decomposing food, the action of which is to utterly prevent digestion, and to distend and dilate the stomach so as to impair its propulsive power. The hypertrophy of the muscular coat of the stomach, which is often developed in scirrhus of the pylorus, does something to compensate for this, but cannot neutralize the evil effects; and it appears clear both that the patient's sufferings are increased and his life shortened by the existence of this state of the gastric contents.

In the case I have recorded, the relief obtained by evacuating the stomach was immediate and great. The appetite improved, the gastric distress diminished, and the eructations and vomiting ceased. It seemed also that after the removal of the irritating contents from the stomach, the organ could contract to better advantage, or that the obstructed pylorus permitted the more healthy fluid to pass in greater quantity, since the evacuations from the bowels became regular and normal. So great was the gratitude of the patient for the comfort obtained, and so positive was the improvement in many of his symptoms, that I now regret not having resorted to the use of the stomach-pump at an earlier period in the case, before the strength was so much exhausted by protracted innutrition; and it is certainly my intention

* Localized Electrization, Trans. from Third Edition by H. Tibbits, M.D., London, 1871, p. 103.

† Medical Electricity, Second Edition, London, 1870, p. 386.

‡ Deutsches Arch. f. Klin. Med., December, 1869. For an interesting synopsis of the views of Kussmaul and of those who have employed this mode of treatment, see *Dublin Quarterly Journal of Medical Sciences*, November, 1870, p. 380.

to employ it in similar cases which may come under my care in the future.

The manifest objection to this plan of treatment would appear to be the difficulty in accustoming patients to the frequent introduction of the stomach-tube; but my experience in the present case entirely coincides with that of Kussmaul, to the effect that, in cases where there has been habitual vomiting, the sensibility of the pharynx and œsophagus is so much impaired that the passage of the tube causes little or no inconvenience. The repetition of the operation has been well borne in all cases where it has been tried, and, with proper care and delicacy in the manipulations, the treatment appears to be free from danger.

Kussmaul recommends that the stomach be washed out once in every two or three days; but it is evident that this must depend in some measure upon the improvement effected in the condition of the contents and the dilatation of the stomach. As before stated, Vichy water was used by Kussmaul in his first case to wash out the stomach, after pumping out its contents; in other cases, solution of soda, hyposulphite of soda, or creosote water, have been employed. In the present case, pure tepid water was injected, and with the effect of very greatly improving the condition of the gastric contents. After the operation the stomach should be allowed to remain quiet for an hour or two, when a moderate meal of digestible food may be taken.

NOTE ON A CASE OF CHLOROFORM POISONING.

BY A. FRICKE, M.D.

ON the morning of the 1st of March, through a mistake of her niece, who is nursing her, Mrs. H., æt. 45, took, in a quarter of a tumblerful of water, one tablespoonful of chloroform, instead of the same quantity of liq. ammon. acet. She complained at once of the burning sensation the dose produced, and her niece, instantly perceiving the mistake she had made, hastened, with admirable presence of mind, to the kitchen, where she procured a pitcherful of lukewarm water, a pint and a half of which she made Mrs. H. swallow immediately. Although eight minutes only had elapsed since she had taken the chloroform, yet she was at this time entirely unconscious. The copious draughts of water provoked vomiting, during which act it is probable that most if not all of the chloroform was thrown up. At the same time her bowels and bladder were evacuated involuntarily. I saw her soon after the accident; she was unconscious, but could be roused. She was freely stimulated with brandy, and salad oil with the yolk of an egg was administered to her. In the afternoon her condition had very much improved, but she was still very feeble, and said she felt queer twitchings in her body, which lasted over twenty-four hours. She describes her sensations after taking the chloroform as follows: a rush of something to the head, dizziness, flashes of light before the eyes, and tingling of the limbs.

A CASE OF POISONING BY OPIUM

TREATED BY HYPODERMIC INJECTIONS OF SULPHATE OF ATROPIA.

BY J. L. CARTER, M.D.,
of Jackson, Miss.

I WAS asked, January 31, 1871, to attend Mr. —, æt. 27, who had attempted suicide about two hours previously,—first by taking laudanum, and afterwards by shooting himself. The ball struck the fourth rib on the left side, and was deflected by it, so that no serious injury resulted. The quantity of laudanum taken was ascertained to be about a fluidounce. When I entered his room I found him crying and regretting

that the wound was not a fatal one. The respiration was slightly disturbed, the pupils were contracted, and there was some drowsiness. Soon after my arrival Dr. Harrington came in, and we at once proceeded to administer twenty-five grains of sulphate of zinc. No effect being produced by it, we had recourse to the stomach-pump, with which we washed out the stomach four times, distending it to its full capacity each time. The liquid obtained in this way did not smell of laudanum, and there was therefore reason to fear that the whole quantity had been absorbed. We then determined to try the antidotal powers of belladonna, and with this object injected at six o'clock, hypodermically, one-thirtieth of a grain of sulphate of atropia, dissolved in a few drops of water. At this time the drowsiness had very much increased, and it was necessary to force the patient to walk up and down the room, to whip him with switches, and to apply the douche of cold water to his face, in order to keep him awake. At 2 P.M. the atropia was again administered in the same way and in the same dose. At this time the pupils began to dilate. Electricity from a horse-shoe battery produced very little effect, and it was found impossible to prevent him from falling to sleep. At 2¼ P.M. I injected one-sixtieth of a grain. This did not prevent the supervention of profound coma and absolute insensibility to all external irritants, during the continuance of which the patient was vigorously rubbed. Injections of one-thirtieth of a grain were made at 3, 4, 5, 6, 7, 8, 9, 10, and 11 P.M.; so that in all eleven injections of the thirtieth of a grain and one of the sixtieth were given. After the fourth injection the face was observed to be suffused, the pulse to be 140, but of good volume, and the respiration only between four and five in the minute. After the fifth injection the pupils began to dilate, and after the sixth they were dilated to their full extent. The pulse sank to 125, and the respirations became a little more frequent. The sensibility of the surface returned after the eighth injection, and at ten o'clock the patient manifested, for the first time, some signs of pain at the use of the hypodermic syringe. After the injection given at eleven o'clock the countenance became more natural, and the pulse and respiration were nearly normal. At five o'clock next morning he was able to converse with his friends, and three hours later he could walk about his room. The next day recovery was complete.

NOTES OF HOSPITAL PRACTICE.

PENNSYLVANIA HOSPITAL.

SERVICE OF JAMES H. HUTCHINSON, M.D.

FACIAL PARALYSIS TREATED BY STRONG HYPODERMIC INJECTIONS OF STRYCHNIA.

THE patient whose history is given below in full became affected with facial paralysis of the right side, in consequence of severe injuries received nearly nine years before coming under observation. As ordinary remedies did not seem capable of bringing about any improvement, it was resolved to have recourse to the strong hypodermic injections of strychnia, as recently recommended by Mr. Barwell, of London, in the St. Thomas Hospital Reports. He recommends that five and even seven half minims of the following solution should be injected:

Strychnia, gr. ij;
Acid. Hydrochl., ℥ v;
Spirit. Rect., ℥ xv;
Aq., ℥ lxx.

The mixture should be warmed slightly before being used, as at a temperature below seventy degrees it is liable to become turbid. Each minim will of course represent the one-fortieth of a grain of the alkaloid. Beginning at first with only two minims, the dose was finally increased to three minims, at which point it was thought most prudent to stop. As will be seen by the notes, none of the usual effects of strychnia poisoning was produced; and although the result was not favorable, yet I should be inclined to try the same treatment

in cases in which the paralysis had not existed for so long time. Mr. Barwell recommends these strong injections especially in cases of infantile paralysis, and says that they should always be used when it is desired to produce a powerful local effect. Where, on the other hand, it is desired to produce a constitutional effect, a more dilute solution is to be preferred.

Charles Lynch, Ireland, æt. 42, a clerk, unmarried, admitted January 25, 1871.

In July, 1862, while serving as soldier in the volunteer army of the United States, being on guard duty at night on a railroad, he was struck by the cow-catcher of a locomotive and thrown from the track. He received injuries of a serious character about the head. There was a fracture of the anterior edge of the floor of the right orbit; violent concussion, followed by hemorrhage from nose, mouth, and right ear; and injuries of his right foot, which necessitated a partial amputation. For several days he remained unconscious, and on recovering found the entire right side of his face paralyzed. At first this paralysis was very marked. It slowly but gradually improved during the three years immediately succeeding the accident, during which he was treated in several military hospitals. Since 1865 there has been very little change.

January 25.—On admission, found to be suffering from "irritable heart," for which he was given ext. belladonna, gr. $\frac{1}{8}$, quinia sulph., gr. i, t. d., under which treatment he has greatly improved. Stopped February 13.

February 15.—His general condition has greatly improved. The heart's action is regular; he is free from pain, and in every respect well. The paralysis of the seventh nerve on the right side presents its usual appearance. It is not, however, complete; there is still some power of movement. The surface is smooth and the expression nil, contrasting strikingly with the left side of the face, which is mobile and wrinkled. The lower eyelid droops a little, and he cannot close the eye, the cornea of which is in consequence slightly hazy. The effort to shut the eye produces the usual contortion of the face; the left eyelids are squeezed tightly together, while the right are but very slightly approximated, the ball being, however, rolled upward. The right ala of the nose falls inward on inspiration, and the sense of smell in the corresponding nostril is relatively obtunded. The mouth is drawn to the left; the tongue is not deflected to either side. The function of the right ear is very feebly exerted; nevertheless, he is able to catch some sounds. There is no obvious difference in the growth of the beard on the two sides. Irregular twitchings of right cheek. Mastication is well performed; he does not drop pieces of food or liquids from his mouth. Urine,—nothing abnormal. Appetite good; bowels fairly regular. There is no paralysis of soft palate. Sleeps excellently.

February 13.—Treatment: Syr. ferri, quiniæ et strychniæ phosphatum, \mathfrak{ss} , s. t. d.

February 15.—Hypodermic use of the alkaloid strychnia commenced; gr. $\frac{2}{5}$ injected into tissues over ramus of the jaw. No effect observed. Patient stated subsequently that it made him sleep.

February 16.—Gr. $\frac{2}{5}$ injected. No obvious result.

February 17.—Gr. $\frac{3}{5}$ " " " "

February 18.—Gr. $\frac{3}{5}$ " " " "

February 19.—Gr. $\frac{3}{5}$ " " " "

Patient has gained very much in flesh; no constitutional effect has followed the use of the remedy other than beneficial. Perhaps the twitching of the right side of the face has increased, and a little more power of motion exists.

February 21.—Gr. $\frac{3}{5}$ injected.

February 23.—Gr. $\frac{3}{5}$ " "

February 25.—Gr. $\frac{3}{5}$ " "

The injections are always given at bedtime, and the patient states that they in no wise interfere with his rest.

February 26.—The application of the induced current gives rise to muscular contractions of affected parts. It has been made every other day for the last week. Ordered to be repeated daily. As no obvious effect has been produced by the hypodermic injections of strychnia, they were discontinued, and on March 7, 1871, the patient was discharged.

WILLS OPHTHALMIC HOSPITAL.

CONTRACTION OF PUPIL, WITH PARTIAL PARALYSIS OF ACCOMMODATION.

SERVICE OF GEORGE C. HARLAN, M.D.

MARY N., forty-six years of age, applied for treatment at the dispensary of Wills Hospital. Five weeks before, she had had complete hemiplegia of left side. At the time of examination there was still partial paralysis of that side, of both motion and sensation. She could move the arm feebly and walk with slight assistance.

There were ptosis and divergent strabismus of the left eye. The pupil was intermediate in size, and immovable, dilating irregularly under atropia. Ophthalmoscopic examination showed decided white atrophy of optic disc.

Vision = $\frac{20}{L}$ Snellen's Types.

She complained that she could not read or sew with the right eye, though she had been able to do so easily without glasses before her sickness. The pupil was contracted almost to a pin-point, and immovable. $v = \frac{20}{xx}$, $a = \frac{1}{8}$. Though

her distant vision in that eye was perfect, small print could not be distinguished nearer than eighteen inches. She could read the smallest print with ease at nearer points, with the aid of convex glasses of proper focus to accomplish the necessary accommodation, showing that the ciliary muscle only was at fault.

In the left eye, the association of symptoms was just what we would expect to find in paralysis of the third pair and optic nerve; but the right presents an interesting physiological anomaly in the spasm of the constrictor fibres of the iris and paralysis of the ciliary muscle, both supplied by filaments of the third pair from the lenticular ganglion. We usually find that these muscles not only act together in health, but that they are similarly affected by disease or by the action of drugs. We sometimes meet with dilatation of the pupil without relaxation of the ciliary muscle or relaxed accommodation with a normal pupil, but I have never before met with a case, or seen one recorded, in which there were at the same time spasmotic contraction of the pupil and paralytic relaxation of the accommodation.

The only explanation that occurred to me was that the nerve-centre, from which the sphincter pupillæ derived its motor influence, might be in a state of excitation preceding paralysis, and that in a little while longer the pupil would be found dilated.

It would have been interesting to try the effect of atropia and of calabar bean, as well as to obtain a more accurate history of the case; but the patient failed to return, according to promise, and we have been unable to find her.

TRANSFUSION OF BLOOD IN POISONING BY CARBONIC OXIDE.—Prof. Hüter, of Greifswald (*British Medical Journal*), related, at a meeting of the Medical Society of that place, a case of poisoning by carbonic oxide, in which he successfully employed transfusion of blood. The patient, a man 26 years old, was found insensible after four or five hours' exposure to the gas. Artificial respiration had failed of success. When Dr. Hüter arrived, half an hour after he was found, the respiration was very superficial and intermittent, the pulse small and frequent, the pupils did not act, and the cornea was quite insensible. A pound of defibrinated arterial blood was injected into a vein of the patient's left arm, and, respiration having by this time ceased, artificial respiration was kept up while the injection was being given. After about half the blood had been injected, the blood flowed more freely from the cut vein. At the end of the injection the pulse had become fuller and slower, and natural respiration had returned. In half an hour the pupils were sensitive to light, and the patient moved his arm a little. For four hours the tongue had to be held forward, when its tendency to fall back ceased, and consciousness returned. The recovery was complete on the fifth day.

THE MEDICAL TIMES.

A SEMI-MONTHLY JOURNAL OF
MEDICAL AND SURGICAL SCIENCE.

PUBLISHED ON THE 1ST AND 15TH OF EACH MONTH BY

J. B. LIPPINCOTT & CO.,

715 and 717 Market St., Philadelphia, and 25 Bond St., New York.

MONDAY, MAY 1, 1871.

EDITORIAL.

SETTLEMENT OF STAFF RANK IN THE NAVY.

WHEN the bill to regulate the rank of staff officers of the navy, which was brought forward by the Hon. A. F. Stevens, passed the House of Representatives almost unanimously, January 23, very many persons supposed the long-vexed question would be satisfactorily disposed of. That bill was in principle the same as the law which establishes the rank of medical officers in the army, where, according to Gen. Sherman, it works well in practice. The Senate preserved the general details of Mr. Stevens' bill, but eliminated from it the principle on which it was based by substituting relative in place of positive rank; and this relative rank is so qualified and defined in the context of the law that the chief if not the only property of rank conferred on staff officers is precedence. It is believed, however, that if this law is accepted in good faith by the line of the navy, the staff will rest satisfied with its provisions. Future experience only will settle this doubt.

We learn from a pamphlet* by Dr. Frederick James Brown that the medical officers of the English navy have relative rank of sub-lieutenant, lieutenant, commander, captain, commodore, and rear-admiral on the active list, and on the principle that "relative rank shall carry with it precedence and advantages attaching to the rank to which it corresponds." But, although the principle is fully admitted in clause 10 of the warrant of May 30, 1859, to regulate all combinations of the land and sea services, the Admiralty, in regulating the affairs of the navy, puts it in practice only exceptionally. Dr. Brown complains because rank in the line counts by seniority, while in the medical corps it counts by years of service, which in effect destroys the perfect equality which, he contends, should exist in all matters of allowances, pensions, retired pay, widows' pensions, and children's allowances.

In spite of the scale of relative rank of medical officers in the English navy, they are not satisfied, and the service is so unpopular among medical men generally that there are not candidates enough to fill the

vacancies in the navy medical corps. If the suggestions of Dr. Brown should be adopted, which look to placing medical officers of the navy on a perfect equality with those of the army relatively in all respects to the line, according to the degrees of their relative rank, the difficulty of filling the naval medical corps will disappear. The purpose of Dr. Brown's effort is to show that all classes of officers should be dealt with "on the principle of equality of privileges to grades of rank relatively equal." He is evidently master of the subject, and seems to possess the unreserved confidence of the profession, both in and out of the service.

The provisions of the law recently enacted to establish the rank of medical officers in our service are substantially as follows:

The officers of the medical corps on the active list of the navy shall be—

Fifteen medical directors, who shall have the relative rank of captain;

Fifteen medical inspectors, who shall have the relative rank of commander;

Fifty surgeons, who shall have the relative rank of lieutenant-commander or lieutenant; and

One hundred assistant-surgeons, who shall have the relative rank of master or ensign. Those who are found qualified for promotion on examination after three years' service shall have the relative rank of lieutenant or master.

Medical officers who have served forty-five years, and those who are retired at sixty-two years of age, shall, on the completion of forty years of faithful service, have the relative rank of commodore. Those who are retired "for causes incident to the service" before attaining the age of sixty-two years retain the same rank they held on the active list at the time of retirement.

No person under twenty-one or over twenty-six years of age can be appointed an assistant-surgeon.

The attributes of rank in the line, or positive rank, are precedence, right to quarters, right to succession in command and to promotion according to date of commission. Under the common law of the service and departmental regulations there are certain personal privileges, immunities, and ceremonial honors annexed to each degree of rank.

This law makes the qualities of relative rank very different. It inhibits right to quarters, and its precedence is determined, not by date of commission, but from original entry into the naval service, after adding six years to the actual period of the medical officer's service. For example, the medical officer who was commissioned January, 1866, reckons his precedence with line officers from January, 1860. His precedence or degree of relative rank at this time is thus made contingent upon the degree of rank which the line officer who entered the Naval Academy in January, 1860, has now attained. The surgeon of January, 1866, has now the relative rank of lieutenant-commander, provided that the naval cadet appointed January, 1860, has been promoted to that grade; otherwise he has the relative

*The Naval Medical Service: its Present State and Prospects, with Suggestions for its Improvement. By Frederick James Brown, M.D., Lond. and Edinb., F.R.C.S.; Fellow of the University College, London; Consulting Surgeon to St. Bartholomew's Hospital at Rochester; formerly Assistant-Surgeon in the Royal Navy. Second Edition. 8vo, pp. 60. J. E. Adlard, London, 1871.

rank of lieutenant. If the naval cadets appointed in the spring of 1865 have not yet been advanced beyond the grade of ensign, assistant-surgeons commissioned in the spring of 1871 have the relative rank of ensign, and are quartered in the steerage with ensigns and midshipmen; but if the naval cadets of 1865 are now masters or lieutenants, the assistant-surgeons of 1871 have the rank of master, and are messes and quartered in the ward-room. If the cadets of 1865 were now lieutenant-commanders or commanders, the assistant-surgeons of 1871 would still have the relative rank of master, and no more.

Under the provisions of this law the relative rank and precedence of surgeons, passed-assistant-surgeons, and assistant-surgeons are contingent, within specified limits, upon the rate of promotion of officers of the line, but the relative rank of medical directors, medical inspectors, and medical officers retired after forty-five years' service, as well as those retired at sixty-two years of age, on the completion of forty years' service, is fixed. The precedence of medical officers with each other is not determined, as heretofore, by date of commission in the grades, but by date of original entry into the naval service.

Commanding officers of vessels of war and of naval stations have precedence of all officers placed under their command, without regard to the degree of relative rank the latter may have.

"To every vessel of war and naval station, the law authorizes the appointment of an aid or executive officer," whose orders, though he is forbidden to exercise any authority independently of his commanding officer, are to be regarded as emanating from the latter, who is thus made legally responsible for the official acts of his aid. While executing the orders of his commander, he has precedence of all staff officers of the ship or station, without regard to their relative rank; but those staff officers who are his superiors in relative rank "have the right to communicate directly with the commander:" that is, to report directly to and receive orders directly from him. In processions on shore, courts-martial, summary courts, courts of inquiry, boards of survey, and all other boards, line and staff officers take precedence according to rank,—that is, according to precedence reckoned from original entry into the service, after adding six years to the date of entrance of staff officers.

The title of the chief of the bureau of medicine and surgery is changed to Surgeon-General; and, although his is a civil commission, and his annual compensation is provided for in the appropriations for the civil service, he is to have the relative rank of commodore.

The law provides that "chiefs of bureau may be appointed from officers having the relative rank of captain in the staff corps of the navy on the active list," and that "any staff officer of the navy who has performed the duty of chief of a bureau of the Navy Department for a full term [four years] shall thereafter be exempt from sea-duty, except in time of war."

The first of these provisos seems designed to secure

to the office of chief of bureau only men whose experience has made them practically familiar with the requirements of all the grades of the vocation, to make the office a reward for past services, and remove it beyond the reach of smart young aspirants or tuft-hunters; and the second, which apparently has a retro-active or ex-post-facto application, to excuse from sea-duty any one who may have been prematurely made chief of bureau without having previously served in his grade at sea. One having the relative rank of captain at the time of appointment may unreservedly confide in the discretion of the Secretary of the Navy to assign him to duty after leaving a bureau, without specific legislation on the point.

The rates of compensation of medical officers have not been altered by this law. They were stated in our issue of December 1, 1870, p. 80.

There are about twenty vacancies in the medical corps. Now that the question of rank has been settled, it may be presumed that these will be promptly filled by properly-qualified candidates. The board of naval medical examiners is in session at the Naval Hospital in this city. Permission to be examined may be obtained from the Secretary of the Navy, or from the Surgeon-General. The application should be accompanied by testimonials of moral character, habits, etc.

THE SUIT AGAINST PROFESSOR GROSS.

THE suit for malpractice, in which Prof. Gross, of the Jefferson Medical College, and his son, Dr. Samuel W. Gross, were the defendants, was brought to a sudden close by the Judge (Lynd) directing that a nonsuit should be entered, the plaintiff having utterly failed to make out a case against them.

It appeared upon the trial that a colored man, who had lost his leg in consequence of a wound received during the late civil war, applied to Prof. Gross to perform an operation for the cure of an aneurism which had formed in the stump as the result of a fall. It further appeared that the opinion of other surgeons had also been asked, and that this had been in some cases unfavorable to operative interference; but it does not appear that the surgeons previously consulted were of great eminence, and the attempt to prove that the operation had been declined at the Pennsylvania Hospital failed.

The patient, who is represented to have been intelligent and educated, when he applied to Dr. Gross for relief, could not, therefore, have been ignorant that the operation, although affording him the best chance for life and health, was not unattended with danger; but we have also the best authority for saying that its nature, as well as the risks which he ran in submitting to it, was fully explained to him before it was performed, and that he was heard to declare immediately before the operation that he would have it done at all hazards. No want of skill in the performance of it, and no want of due attention to the patient afterwards, was

alleged against the defendants; and the prosecution seems to have hinged upon the fact that the defendants had had the misfortune to lose a patient after performing an eminently justifiable and proper operation. So far from any negligence having been proved, the patient seems to have been watched with a care and assiduity which certainly could not have been exceeded if he had been a millionaire, instead of being a poor man, as he was, unable to pay his physicians for the services they rendered to him. After the performance of the operation at the public clinic of the Jefferson Medical College, he was taken to his home in Addison Street, and there carefully nursed day and night by physicians and advanced students, and when hemorrhage occurred, as it was feared it might, assistance was promptly at hand.

Notwithstanding that it was clearly proved at the trial that the deceased had not lived happily with his wife and had been separated from her, and that she was not with him at the time of the operation,—only coming to him later to nurse him,—she nevertheless appeared as the nominal plaintiff, but seems to have done so with great reluctance, for three weeks before the commencement of the suit she called on Prof. Gross to say that she disapproved and discountenanced it. His mother also seems to have been very averse to its being instituted, for, hearing of the lawyer's intention to disinter the body, in order to have a post-mortem examination of it made, she forbade it, and threatened to prosecute him if he did so.

The plaintiff's counsel may, therefore, be assumed to be the real plaintiffs, especially as it was clearly brought out in evidence that they had agreed to sustain all the expense of the prosecution, in consideration of receiving a percentage of the damages.

There was so little in the case upon which to found a prosecution, that the conclusion is irresistible that it was instituted in the hope that the defendants would prefer to compromise rather than go into court. Let us hope that the manly conduct of Professors Gross and Reese and Dr. Hall, as well as the result of the suits brought against these gentlemen, has convinced the most unscrupulous among the legal fraternity that the members of our profession, one and all, intend to resist all attempts to levy black-mail upon them. Notwithstanding the aversion which they feel for litigation, physicians have a sufficient sense of what is due not only to themselves, but to the profession of which they are members, to prevent them from being parties to a dishonorable transaction.

Prof. Gross will of course suffer no loss in the estimation of any right-minded or intelligent member of the community; and if there be any such who has thought for a moment that patients are operated upon without their consent, and then shamefully neglected, the Judge's action in dismissing the case without hearing the defence must have thoroughly convinced him of his mistake. The sympathy of the whole profession has been extended to Prof. Gross; but, gratifying as it must be to him to see the high estimation in which he is held

by his brethren in this city, we feel that it must be some time before he will recover from the mental worry caused by this most vexatious trial. It is no slight mortification to a gentleman who stands so high in his profession for skill and honor, and who is so jealous of his reputation in these respects, to have his name bandied about the town and from court-room to court-room, as Dr. Gross' has been during the past few months.

We do not know whether the real offenders in this case are beyond the reach of the law. If they are, there is certainly a defect in the law. If the reputation of a gentleman may be attacked with impunity, and he himself dragged into court, his time wasted, and his mind harassed by any briefless lawyer who prefers the prospect of a contingent fee to a just cause, then the courts of justice, instead of affording protection to the citizen, really become instruments of oppression.

We have only one word more to add, and we are sorry that it is not likely to reach those for whose benefit it is intended,—the nominal plaintiffs in these suits; and that is, that lawyers who outstrip their clients in their eagerness to engage in suits are not likely to prove good advisers, and that respectable members of the legal profession do not usually accept contingent fees from poor people.

CHAIRS OF DENTISTRY IN MEDICAL SCHOOLS.

WE have received a copy of an address by J. H. Foster, M.D., delivered before the American Academy of Dental Science, at its third annual meeting, in Boston. Replete, as it is, with a sentiment which stamps its author as the representative of a standard of professional dignity worthy of imitation in any profession, and abounding more than addresses on similar occasions usually do in practical suggestion, it should be generally read by members of the medical as well as the dental profession.

We were ourselves, however, most interested in the following paragraph, on the subject of dental education:

"I have thought that, in this respect, one or more dental chairs in a medical college, filled by competent representatives of our specialty, combined with a private school education, under the best instructors, capable of more direct practical benefit." (*Sic.*)

This is not a new idea. So early as April, 1851, Dr. E. B. Gardette, a well-known and highly-respected dentist of this city, published in the *American Journal of the Medical Sciences*, and later in the *Medical Examiner*, "a proposition to establish a lectureship on Dental Surgery in the medical colleges."

Why this suggestion was never followed we do not know. Certain it is, however, that, as a consequence, there are now in successful operation in this city two dental colleges, each having, in addition to what may be termed the dental chairs, three professorships common to medicine and dental surgery,—one of anatomy, a second of physiology, and a third of chemistry. The average attendance of the combined schools is at least one hundred and fifty, the addition of which to either

of our colleges, in these days of small classes, would be quite a material contribution.

The day has arrived when the prejudice—always unfounded—of the medical profession against practitioners of dental surgery should cease; and we believe it has, in the main, disappeared. The relation between the two professions is, however, not sufficiently intimate, as is indeed implied in the circumstance that they are considered two professions, whereas they should be one; or, more strictly, dental surgery should be considered a specialty in general surgery, with which it has quite as close a relation as any of the acknowledged specialties of surgery.

It is known to many that the addition of dental chairs has been successfully made within the past few years to the Medical Department of Harvard University, and that the degree of D.D.S. is now conferred by that medical school. We doubt, however, whether it would be possible or desirable, in the present established condition of dental schools in this city, to secure a union of educational interests.

CORRESPONDENCE.

THE LETTER "G."

TO THE EDITOR OF THE MEDICAL TIMES.

SIR:—I write to complain of the letter "G." It has put me to the unnecessary expense of \$6.50, 20 per cent. off, or \$5.20 nett. The case is simply this. Seeing advertised in the daily papers a new volume of Surgical Memoirs, published by the U. S. Sanitary Commission, which was said to contain (*inter alia*) an "analysis of four hundred and thirty-nine recorded amputations in the CONTIGUITY of the lower extremity," I hastily and, as the sequel has proved, most rashly bought the book. On opening it, there, sure enough, on the title-page was the name of the wished-for paper. Here, thought I, is treasure-trove indeed!—439 amputations in the CONTIGUITY, 439 disarticulations, 439 amputations at the hip, knee, and ankle,—all analyzed by that excellent surgeon Dr. Stephen Smith, "edited" by Prof. Frank Hastings Hamilton, and published by the liberality of the U. S. Sanitary Commission!

Pleased with my purchase, I began to turn the pages, when, to my horror and alarm, I found that in the caption of Dr. Smith's paper itself the 439 amputations in the CONTIGUITY had withered away into 439 amputations in the CONTINUITY, and that, in point of fact, instead of invaluable and unprecedentedly extended statistics of amputations at the hip and knee, I was to be fobbed off with some 150 commonplace amputations of the thigh, and some 280 still more commonplace amputations of the leg!

I appeal to you, Mr. Editor, is not this carelessness, in the language of the immortal Dogberry, "most tolerable and not to be endured"?

Yours, more in sorrow than in anger,

V. Q. P.

CHLORAL IN CANCER.—Dr. W. Cooke commends most highly (*Med. Times and Gaz.*) the use of chloral in cancer. Where there is persistent suffering, ten grains three times a day—otherwise twenty grains at night—are the doses he has used it in.

TRANSACTIONS OF SOCIETIES.

REPORT OF THE PROCEEDINGS OF THE PATHOLOGICAL SOCIETY OF PHILADELPHIA.

AT a meeting of the Pathological Society, held Thursday, March 23, 1871, the President, John Ashhurst, Jr., M.D., in the chair,

DR. WM. PEPPER presented the specimens from a case of *scirrhus of the pylorus, with great dilatation of the stomach and visible peristaltic contraction of the stomach-walls*. He read a history of the case, together with some observations on the use of the stomach-pump in removing fermenting gastric contents,—for which see current number of *The Medical Times*.

DR. H. C. WOOD said he was glad to find that the results of Dr. Pepper's attempts to excite peristalsis by electricity coincided with his own. He had never succeeded, though he had made numerous attempts, and theoretically it should be accomplished. He thought much that had been said and written about the effects of the application of electricity to the deeper tissues was unfounded. He had, however, frequently produced these effects in the lower animals, and had produced peristalsis throughout the whole bowel in rabbits. He thought these external applications of electricity seldom reached the deep-seated tissues, and if they did, they must be so much weakened as to have practically no effect. He thought no one could reach the sympathetic with any current applied to the external integument.

DR. PEPPER said he thought that there was much to be accomplished by the application of electricity to the viscera, though he agreed with Dr. Wood that it was absurd to expect to accomplish it by a current through the skin, in the case of an organ which, like the stomach, was so widely separated anatomically and functionally. If, however, means were taken to reach a viscus, as the stomach, directly, by the passage of metallic conductors, marked effects might be produced.

DR. S. W. GROSS presented a specimen of *hydatid mole, or multiple cystoid myxoma of the chorion*.

The case occurred in the practice of Dr. Demmé, of this city.

The specimen presented the well-known appearances of hydatid mole, the villi of the chorion having been converted into a racemose mass, composed of a multitude of clear vesicles, which varied in size from that of a mere point to that of a Malaga grape. Their shape was usually pyriform; many were globular, and some were cylindroidal. They were furnished with slender but tough pedicles, through which they hung from each other, and the large vesicles gave origin to smaller vesicles, projecting from the walls of which were still smaller pediculated ones. Puncture of the vesicles was followed by the escape of a clear, transparent fluid, which had the chemical properties of mucin. After their contents had drained off, there remained a fine, flocculent structure, which was easily torn apart by needles. Subjected to the microscope, this was seen to consist—in addition to hypertrophied villi, the extremities of which were rounded, clavate, or furnished with nodular projections—of small, round, pale, nucleated cells, imbedded in a hyaline matrix, the latter of which showed, at many points, a fibrillar arrangement, with much granular infiltration. The largest pedicles contained a few fusiform cells, which were absent in the other portion.

In connection with the above case, DR. S. W. GROSS also exhibited specimens which illustrated more fully-developed *myxomatous tissue*. They consisted of five mucous or gelatinous polypi of the nose, which were remarkable for their number and size, and were removed from a man forty-eight years of age. The obstruction of the nasal passages was complete, and the anterior nares, from which they protruded, were much expanded. The largest was three inches in length, and the smallest of the remainder measured fully two inches. At a subsequent operation seven additional polypi were extracted.

They were made up of large stellar and fusiform cells, the anastomosis of their prolongations forming an areolar struc-

ture, in the interstices of which mucous corpuscles were very abundant. The nuclei of many of the cells were granular. In addition to these elements, there were present nucleated oil-cells, nasal epithelium undergoing fatty metamorphosis, and crystallized margarine, the latter probably due to the preservation of the specimens in alcohol.

DR. H. C. WOOD, JR., presented the specimens from a case of *intense atheroma of the arteries, veins, and valves of the heart, with total loss of electro-contractility of the muscles of one leg.*

Conrad S., aged 84, a German, was admitted to the wards of the Philadelphia Hospital, February 13, 1871. At time of admission he was weak, but made no other complaint.

February 17.—Noted a loud, prolonged, blowing murmur, synchronous with systole of heart; greatest intensity in third interspace to right of sternum, but very loud beneath the clavicle, where it appears to be lessened in intensity by raising arm. Also a distinct systolic murmur at apex. No murmur audible along arteries or back. Second aortic sound without murmur, but very feebly accentuated. On forced breathing, intercostal spaces of left side very distinct; not so on right side. Arteries everywhere atheromatous. In right axilla was a globose tumor the size of a walnut, pulsating in all directions, readily grasped by the fingers, and evidently immediately connected with the axillary artery, but not giving rise to any murmur or thrill.

On the 18th inst. he began to be delirious,—talking a little to himself, wanting to get out of bed and walk around. Marked rigidity of all the muscles. No distinct paralysis; unable to stand. Pupils strongly contracted, immovable. Auscultation revealed in lungs posteriorly, subcrepitant râles. Very marked loss of sensibility in both legs. In arms, sensibility appears to be also diminished. Moves his legs very slowly and with difficulty. All the muscles rigid,—tetanic.

February 24.—Almost unconscious; cannot be made to answer questions. Does not move left leg, which almost completely fails to respond to strong, induced, interrupted current. In right leg, musculo-contractility to same current apparently somewhat impaired.

At 3½ o'clock P.M. he died.

Autopsy.—Cadaver tolerably well nourished. Brain containing a large amount of serous effusion, which ran out in quantity when skull was opened. Membranes opaque. Arteries of circle of Willis intensely atheromatous. Brain-substance apparently normal. Heart decidedly hypertrophied. Aortic valves covered with profuse, hard, bony vegetations. Mitral valves thickened, not very atheromatous, but an almost entire bony ring in the auricle surrounding the auriculo-ventricular orifice. Aorta enlarged; much of it bony in feeling. Right axillary artery very atheromatous, surrounded by a mass of enlarged glands, forming the pulsating tumor distinguished during life. Left femoral artery intensely atheromatous, occupied by a dense white thrombus. Femoral vein also intensely atheromatous, remaining when cut as a wide-open, gaping pipe; a whitish, firm, tough, fibrinous thrombus, nearly a foot in length, was drawn out from it.

Left lung, nearly normal, very dark-colored. Right lung, upper lobe covered with a cap one-fourth of an inch thick, of dense membrane, intensely solid, apparently contracted, almost black in color.

DR. F. ASHHURST presented a *hypertrophied and dilated heart, with patulous mitral valve*, the result of adhesion, from John L., aged twelve years, who came under his care ten days prior to his death, complaining of difficulty in breathing and general discomfort. Upon examination, his heart presented marked evidence of disease. The area of cardiac dulness was increased, and a decided murmur was detected with the first sound of the heart. The pulse was about 120 per minute, and continued about the same during the attack. The urine contained phosphates at first, and later albumen. There was general anasarca, which subsided somewhat under the use of diaphoretics, etc. No previous history could be obtained, and it was concluded that he was suffering with mitral regurgitation.

The post-mortem examination was made twelve hours after death: the heart only was examined. The pericardium contained about f3viij of serum, and, upon opening the heart, the left auricle and ventricle were found to be greatly dilated,

and the mitral valve so closely bound down as to be practically useless. The other valves were healthy.

DR. W. G. PORTER presented the specimens from a case of *primary cancer of the skin*, with extensive secondary deposits involving the *thoracic and abdominal viscera.*

Rosanna C., colored, came under Dr. P.'s care as a patient of the Philadelphia Dispensary in the latter part of December last. She was forty-nine years of age, of temperate habits, married, and the mother of several children, none of whom were, however, living at that time. Of her family history she could tell nothing, but she had never known any of her family to be affected by cancer. She was rather thin, and stated that she had lost considerable flesh. About two years before, she had first discovered a small tumor, about the size of a walnut, over the linea alba, just above the umbilicus. It was hard, painless, and had increased little if at all in size until about three months ago, when it began to ulcerate and enlarge rapidly. At the time of the first examination her condition was as follows:

She was so weak as to be incapacitated for work, but she was not confined to bed. Her appetite was poor, her bowels constipated; she was losing flesh rapidly, and becoming weaker every day. She suffered no pain, but was nervous, and slept badly at night. The tumor overhung the umbilicus, was about eight or ten inches in circumference, was rapidly ulcerating, and from it, as a centre, several ulcerated nodules proceeded in different directions. In the left breast there was a large hard mass, presenting the ordinary characters of scirrhus in its early stage. The glands of the left axilla were very much enlarged. She was placed on a tonic and stimulating course of treatment, but she became weaker and weaker; the left breast began to ulcerate, the right soon contained a deposit similar to that in the left, the superficial glands on both sides of the body began to enlarge, and on the 13th of March she died, exhausted.

The *post-mortem* examination was made on the 14th of March, about thirty hours after death. The abdominal tumor was removed by cutting around it through the tissues into the peritoneum. The *peritoneum* and muscular structures above it appeared to be healthy. The skin and areolar tissue were very much changed, hardened, and infiltrated with cancerous material. The *liver* was of very peculiar conformation, irregular in outline, and contained numerous cancerous deposits, both on its anterior and posterior surfaces, best marked, however, at the lower part. The *kidneys* were healthy, except one small deposit in the left one. The *supra-renal capsules* on both sides were extensively diseased. The *stomach* was normal in size. The pylorus seemed a little thicker than usual, but there was no deposit about or obstruction of its orifice.

The *lungs* had numerous deposits scattered over their surface, more particularly on the superior and inferior surfaces of the lobes. Several deposits were also noticed on the diaphragm. The anterior and posterior mediastinal glands were likewise affected. Both breasts were involved: the right presented simply a scirrhus mass; the left was ulcerated. The glands of left axilla were much enlarged, and contained cancerous deposits. The inguinal glands were healthy.

The specimens were referred to the Committee on Morbid Growths, which reported, April 13, "The diseased portions are well-marked examples of cancer. The tumor of the skin appears to have been the primary seat of disease, and presents the well-known characteristics of medullary cancer. The metastases were very numerous, secondary deposits having been formed in both breasts, in the anterior and posterior mediastinal glands, the lungs, liver, supra-renal capsules, and there was also a small nodule in the cortical substance of the left kidney. The number of secondary deposits, together with the great rarity of primary cancer of the skin, constitutes, in the opinion of your committee, the chief point of interest in the case. The starting-point of the new growth appears to have been the subcutaneous cellular tissue. Lebert (as quoted by Förster) gives twenty-one cases of primary cancer of the skin, of which eleven were of the face, four on the penis, three at the outer part of the vulva, one on the leg, and one (as in the present case) in the epigastric region."

DR. JOHN ASHHURST, JR., exhibited the specimens from a case of *extensive fracture of the skull, with intracranial hemorrhage, laceration of brain, etc.*

The patient was admitted to the Episcopal Hospital about 4 A.M. on March 23, 1871, having fallen headforemost from a railway-train some four hours previously. The house-surgeon, Dr. W. H. Bennett, found upon examination that there were contusions upon the left side of the head, with bleeding from the left ear, but no external signs of fracture. The patient was profoundly comatose, with a full, slow, but irregular pulse, and stertorous breathing.

The right pupil was widely and the left somewhat dilated. The pulse-rate at five o'clock was noted at forty-four to the minute.

Death ensued about noon, and an autopsy was made some hours later. The tissues of the scalp contained a large quantity of dark fluid blood, and on laying bare the vault of the skull, a fissure was observed, which involved the left temporal, left parietal, and frontal bones, and which at its centre gaped to an extent of fully one line. The calvaria was carefully removed, when the fissure could be traced through the left temporal bone (where it was curiously branched, constituting by its ramifications what the older surgeons would have called a stellated and cambered fracture), through the basilar process of the occipital, and through the petrous portion of the right temporal bone. The skull was thus almost completely girdled by the fracture, an uninjured portion of about three inches in extent only serving to unite the anterior and posterior segments.

There was a large coagulum on the upper surface of the brain, in the cavity of the arachnoid on the right side, blood being also effused in less amount in the left arachnoid and in the meshes of the pia mater. The brain was slightly contused and lacerated at its base, chiefly on the right side, but otherwise seemed to be uninjured.

The points of special interest in this case are (1) the unusual extent of the line of fracture, (2) its position (confirming the observations of Aran and Hewett, that fracture of the base of the skull from indirect violence is invariably accompanied by a fissure of the corresponding portion of the vault), (3) the fact of the chief cerebral lesion being on the side opposite to that on which the skull had principally suffered, thus illustrating the paradoxical truth that, other things being equal, the extent of the visceral is inversely proportional to that of the parietal lesion, and (4) the existence of the large clot on the right side, the injury having chiefly affected the left; this was evidently owing to there being a communication between the left sub-arachnoid space and the gaping fissure of the corresponding parietal bone, thus allowing the outward passage of the blood effused on that side, while on the right side it was confined to the part at which extravasation originally occurred.

DR. H. ALLEN, in the course of a verbal communication, invited attention to what he believed to be the correct interpretation of the *aphonia resulting from pressure on the recurrent laryngeal nerve*. Dr. Morell Mackenzie, in his paper on Nervo-Muscular Affections of the Larynx (*Lond. Hosp. Rep.*, 1867, p. 117), states that it is due to paralysis of the posterior thyro-arytenoid muscle (abductor of vocal cord), since the laryngeal image in cases in which such aphonia was symptomatic of pressure exhibited central fixation of the cord. Assuming that the accepted statement that the recurrent laryngeal supplies all the intrinsic laryngeal muscles, is the correct one, it is difficult to understand why pressure on its trunk should affect but one of its branches. Dr. A. thought that the true explanation lay in the fact that all the intrinsic muscles were paralyzed by such pressure, and that the central fixation of the cord was caused by the passive inclination of the arytenoid cartilage toward the median line, aided by the inspiratory effort, the vocal cord being at the same time made tense by the contraction of the crico-thyroid muscle.

DR. S. W. GROSS presented an enormous *enchondroma of the tenth rib*, removed by Prof. S. D. Gross from a robust man aged 30. The tumor was seven years in attaining its growth. It extended from the lower left dorsal region two inches external to the spinal column, obliquely downwards and forwards to one inch above the crest of the ileum, and two inches posterior to its anterior superior spinous process. It was broadly oval, with the narrower end below, and measured twelve inches in its long diameter by nine in its transverse. The integuments were not adherent, and the subcutaneous veins were slightly enlarged at its lower limits.

It was painless, and the man's health generally good. The operation was performed at his urgent request. He died on the twelfth day after the operation, apparently of left pleuro-pneumonia.

Post-mortem inspection, twelve hours subsequently, revealed the left lung pushed high up into the chest by the diaphragm, which was on a level with the third intercostal space, apparently from distention of the stomach, and compressed against the anterior thoracic walls by accumulation of fluid behind it. There was circumscribed pneumonia of the lower lobe, and the pleural sac contained about a quart of straw-colored serum with large flakes of lymph. The pleura covering the posterior surface of the lung and chest-wall was much thickened and adherent through recent inflammatory effusion. The tenth rib, from its angle almost to its costal attachment, was found to have been the seat of the tumor, and the remaining extremities had a coarsely granular feel. The pleura, which corresponded with the former site of the mass, was uninjured and covered with granulations.

In *microscopic characters* there was much diversity; but the great mass of the tumor was composed of cartilage tissue. Numerous sections of the lower or more recent portion and of the lobules showed pale, largely-nucleated cells, the general conformation of which was round and ovoid, a few being acuminate, a few stellate, and some were in the stage of proliferation. The majority contained oil-drops, and their nuclei were mostly very granular. A few of the sections exhibited a structureless matrix, but the intercellular substance consisted for the most part of moderately coarse, wavy fibrous tissue, between the fibres of which many spindle-cells were distinguishable. The lowermost limits of the tumor, in which rapid growth had recently occurred, bore the greatest similarity to sarcoma tissue. At some points, the fibrous tissue formed areole, in which were imbedded patches of hyaline cartilage. In those portions which were undergoing degenerative changes the cells were globular and packed with drops of oil. The stroma in which they lay was completely fibrous, and infiltrated with minute, highly-refracting, fatty granules and drops of oil, which now and then completely obscured it. The fluid contents of the cysts contained transformed cartilage-cells. The islets of cartilage were rich in cell-elements, and the spicules of bone had well-marked lacunal cells, with canaliculi, but there were no Haversian canals. Other nodules, of apparent spongy bone, were composed merely of amorphous calcareous matter, which disappeared on the addition of muriatic acid, when cartilage-cells, with large nuclei, were developed. The upper or older portion of the growth was made up of smaller cartilage-cells, contained in a sparse but coarse, straight and wavy fibrous matrix, in which spindle-cells were definable. Both cells and matrix were undergoing fatty metamorphosis.

BIOLOGICAL AND MICROSCOPICAL SECTION, ACADEMY OF NATURAL SCIENCES.

AT a stated meeting, held April 3, 1871, the Director, S. W. Mitchell, M.D., in the chair,

A donation was received from the Surgeon-General's office, of Col. J. J. Woodward's interesting report, entitled "A Memorandum of the Test Podura," with five photo-micrographs.

DR. JAMES TYSON exhibited slides of the deposit from two specimens of urine from a case of so-called *intermittent hæmaturia*, which were interesting, if not important, from the fact that the first specimen, though containing granular casts, did not contain blood-corpuscles, and that the second, between the discharge of which and the first, the urine had become quite clear, contained, in addition to granular casts, blood-corpuscles and blood-casts. The importance of this observation lies in the circumstance that in the cases of intermittent hæmaturia reported by Harley (*Medico-Chirurgical Transactions*, vol. xlviii., 1865) blood-corpuscles were exceedingly rare, being found in a single case, and not more than one or two in the field of the microscope. So rarely, indeed, have corpuscles been present, that Dr. Beale in the first volume of *The Practitioner*, Aug. 1868, says, "It is therefore improbable that in these cases there is any hemorrhage as in acute inflamma-

tion of the kidney, and they ought not to be spoken of as cases of hæmaturia."

In the present case all the other phenomena of intermittent hæmaturia attend, and in the second specimen of urine there were many free blood-corpuscles and blood-casts, while in the first the most careful searching detected none.

The treatment found most useful in intermittent hæmaturia, that by anti-periodic doses of quinine preceded by a purgative dose of calomel, has here also been the most satisfactory, there being no recurrence since its adoption, although four weeks have elapsed, while other modes of treatment, adopted since October, 1870, when the affection first appeared, have signally failed.

Dr. J. G. RICHARDSON exhibited a slide charged with pulmonary elastic tissue from the boiled sputa of a phthisical patient in the Episcopal Hospital, and called the attention of the Section to two characteristics of its elastic fibres: first, the delta (Δ) rather than simple Y shape, frequent among the fragments, which he attributed to the greater resistance, at the meeting-point of the walls of the air-vesicles, to any disintegrating process; and second, the transverse fracture of its component elastic filaments, resembling that of an India-rubber thread, instead of a frayed-out appearance similar to that presented at the extremity of a broken cotton or linen string.

By these peculiarities pulmonary elastic tissue can generally be distinguished from folds in the walls of boiled starch-corpuscles; from mycelial threads of fungi (which, when dichotomous, often have stem and branches of nearly the same size); and from vegetable fibres, which seldom break transversely, and which, when split, take on the Y, and not the Delta shape, as a rule:

REVIEWS AND BOOK NOTICES.

BLOOD-LETTING AS A THERAPEUTIC RESOURCE IN OBSTETRIC MEDICINE. By FORDYCE BARKER, M.D. Pamphlet, 8vo, pp. 14. Reprinted from *New York Medical Journal* for January, 1871. 'D. Appleton & Co., 1871.

As in the individual the true character, which underlies and models the outward manifestation of action, will often be betrayed by a gesture or an unconscious expression, so too the habits of thought, the manners, the morals, of a century or an epoch may be, and oftentimes are, better illustrated by an anecdote or a homely phrase than by the most scientific analysis of the historian or philosopher. It is to the quaint recitals of Pepys, the elaborate details of Evelyn, and the sparkling satire of Addison and Steele that we trace our liveliest and most vivid impressions of those bygone days. Instinctively recognizing this truth, Dr. Barker has happily utilized an incident which to most men would have seemed "a trifle light as air," but which when seen by eyes which looked deeper than the surface, was found to embody a scientific principle, a living belief, acting upon and influencing men in their daily life, in the truth or falsity of which they are most profoundly interested.

It seems that on his return to New York, after his summer vacation, Dr. Barker found it necessary, for reasons which are not given, to take blood from the arm of a patient in the sixth month of pregnancy. Not having a lancet in his pocket, he went to a large surgical instrument maker on Broadway, and asked for one, when, to his surprise, he was told that there was not a thumb-lancet in the shop!

Is venesection, then, to be regarded entirely as a relic of the past? Is that day inevitably to come when the pocket-lancet will arouse the same feeling of curiosity in the minds of future physicians, when the corroded instruments exhumed from long-buried Pompeii excite to-day in us? Or is it that the reaction against the indiscriminate use of depletion has reached its culminating point, and that we are now to retrace our steps, and with calmer heads, free from the heat of dispute, restore it to the place which it deserves in the hierarchy of remedies? May we not, in the history of the fluctuations of scientific opinion with regard to the value of venesection as an operation in obstetric surgery, find an apt illustration of this

unfortunate—one might almost say inevitable—tendency of the human mind, and, stimulated by the success which has attended a thorough investigation of this question by means of the more vigorous inductive methods of thought, now demanded in all scientific inquiries, venture again to weigh the arguments for and against venesection?

Such was the problem which suggested itself to Dr. Barker; and this little brochure is to be regarded as the expression of his views, founded on clinical observation. The discussion which followed its reading before the New York County Medical Society, was exceedingly animated, and we learn with a sad pleasure that almost on the day of his death the late Professor Elliot had transmitted to the editor of the *New York Medical Journal* a paper on this subject, embodying the results of his extensive experience.

In a few paragraphs, Dr. Barker reviews the testimony of the older obstetric writers with regard to venesection in pregnancy, parturition, and childbed. Their voices give forth no uncertain note. Never did the early Fathers enunciate any tenet of the Church more absolutely, than did these writers the dogma of plethora during pregnancy. The indications for the abstraction of blood were so various, and so rigidly enforced, that but few women could have escaped the lancet during one of the above periods.

When, chiefly owing to the labors of Cazeaux, the doctrine of true plethora in the pregnant woman was replaced by the theory, since confirmed by nearly all careful observers, that the condition was really one of impoverishment of the blood, of hydræmia so called, the arguments by which venesection was sustained were weakened, and the practice gradually fell into disuse; the more readily because this view coincided with that which was gaining ground in all departments of medicine. So complete has been the reaction that some writers of the present day, representatives of distinguished schools, affirm that they know of no condition which can justify the abstraction of blood from the arm of a pregnant female. While Dr. Barker in general accepts the views of Cazeaux as regards the condition of the blood in pregnancy, he thinks that real plethora may at times, though rarely, exist, and, indeed, may give rise to such serious symptoms of congestion that the continuance of pregnancy, nay, possibly, the life of the woman, will be jeopardized. In such cases, the abstraction of a few ounces of blood may be the means of saving both mother and child.

The interesting question of eclampsia is then discussed; and, as it is in cases of this nature that the question of venesection most often presents itself for decision, we propose to consider this topic somewhat in detail. In advance, we would call attention to the number of conditions which are grouped together under this title, which is in danger of degenerating into a term as vague and inexpressive as "dropsy." We must distinguish as clearly as science will at present admit. 1st. Hysterical convulsions, which often simulate in a most perplexing manner eclampsia. 2d. Epileptic convulsions occurring during pregnancy or parturition. 3d. Those caused by meningeal inflammation, or having their origin in the presence of an apoplectic clot. 4th. Reflex convulsions dependent upon some eccentric irritation. 5th. True uræmic convulsions caused by an advanced stage of Bright's disease, when pregnancy is to be regarded simply as a concomitant, an accident. Lastly, true eclamptic convulsions; and this brings us to the discussion of some of the prominent points in the pathology of the disease.

A glance at the preceding section will show that we do not hesitate to adopt the opinion of those who maintain that the theory of uræmic poisoning is not applicable to all, or even most, of the cases of eclampsia. That the accumulation in the blood of urea, or its derivative, carbonate of ammonia, may produce convulsions closely resembling eclampsia, we cannot fail to admit, after carefully studying the experiments of Spiegelberg (an abstract of which appeared in this journal, vol. i., No. 8); but, in point of fact, what is the post-mortem evidence as regards the condition of the kidneys? In more than one-third* of the cases there is no disease; in many of the others, when these organs are affected, we find simple hyperæmia, "cloudy swelling," or fatty degeneration of the

* Winkel, Die Pathologie und Therapie des Wochenbetts, p. 442.

cells. In only one third of the cases, where any change of structure is visible, do we discover diffuse interstitial nephritis, the third stage of Bright's disease; or, in other words, in this small proportion of cases alone do we recognize that pathological state which we would expect, arguing from the analogy of Bright's disease occurring in the non-pregnant female. One source of fallacy lies in the assumption that the occurrence of albumen in the urine proves the existence of Bright's disease, while in point of fact it may have its origin in simple hyperemia of the kidneys, and is indeed sometimes found in the course of a normal pregnancy and childbed. In a small proportion of cases of eclampsia (1.5 per cent.) albumen is not found in the urine, and often is not present *before* the convulsions, but succeeds them, being caused by them.

Failing, then, to accept this theory of uræmia as a *constant* cause of eclampsia, what other mode of explanation is left to us? Let us again turn to the post-mortem table for evidence, and we find that in only two or three per cent. of all the cases the brain was found in a normal state; in by far the larger number it was anæmic and cedematous to such an extent that the convulsions were more or less effaced. In about one-sixth of the cases it was hyperæmic, with apoplectic clots varying in size from a millet-seed to a hen's egg. So far the post-mortem evidence. Let us now avail ourselves of the careful experiments of Frank and Munk, who produced artificially this state of hydræmia, with subsequent cedema and anæmia of the brain, by tying the ureters and jugular veins in animals, and then injecting water into the carotid artery: twitchings of the muscles succeeded, followed by the most violent convulsions and coma, the post-mortem examination revealing anæmia and cedema of the brain. Other experimenters have in various ways confirmed these observations, and the deductions made from them by Frank, viz., that hydræmia, associated as it is with an increased tension of the arterial system, leads to primary hyperæmia, cedema, and secondary anæmia of the brain, and that *many* cases of puerperal eclampsia find in this sequence their explanation. "These clinical facts also," writes Winkel, "corroborate this view, viz., that eclampsia is especially frequent in pregnant women when the evidences of hydræmia are most marked, that is, in persons who are cedematous, and whose urine contains albumen (caused by the congestion of the kidneys); 2d, Eclampsia occurs far more frequently in primiparæ than in multiparæ, and is especially common in cases of tedious labor and in twin pregnancies; 3d, The outbreak of convulsions usually takes place during the violent efforts of parturition, or within the ensuing twelve hours." In all of these cases the tension of the arterial system is increased, and cedema can the more readily follow, owing to the watery condition of the blood. That all cases of eclampsia are explained by this theory, which is most warmly advocated by Frank, Munk, and Rosenstein, is not maintained; but that many cases which are utterly inexplicable under the arbitrary assumption of uræmia will in this manner find a clear and simple elucidation, will, I think, be admitted.

If this theory be true, the value of venesection must also be allowed. In the lancet we have a means by which we can remove this arterial tension and avert the dangers which accompany the act of parturition. In its use we do but follow the lead of nature, for we find that the convulsions generally cease after the labor is completed and a natural venesection has resulted from the loss of blood attendant upon the process. Could we accurately measure the danger of the moment, we might sometimes be justified in awaiting this cure of nature, merely expediting delivery; and such cases do occur; but experience tells us that too often the convulsions may be fatal in themselves, or produce pathological conditions which result in death; for the danger lies not alone in the cerebral disturbance, but also in the congestion of the pulmonic system.

An experience of two winters in the wards of the Vienna Lying-in Hospital, where venesection is never resorted to, convinced me that in most fatal cases cedema pulmonum was the *immediate* cause of death: so that venesection in these cases must be regarded as an "indicatio vitalis." Clinical experience, too, justifies our active interference, if we can credit the statements of a host of writers; and in this connection Dr. B. W. Richardson's testimony will recall many similar cases to

any one who has had a large obstetric experience: "In two cases," he writes, "I have bled from the arm, and have seen entire consciousness from the profoundest coma appear while the blood was flowing." Dr. Bennett, who, as is known, is no advocate for blood-letting, coincides with and supports this view.

A few other indications are brought forward by Dr. Barker; but the wide circulation this paper will receive from its publication in the *New York Medical Journal* justifies us in referring those who are interested in this question to the original article; and what obstetrician or—we need not use a restricted phrase—general practitioner is not? The thanks of the profession are due to Dr. Barker for calling attention once more to a remedy powerful for good or evil, but which, when judiciously employed, yields to no other, as Dr. Richardson writes, "in producing effects patent to the eye and convincing to the reason."

BOOKS AND PAMPHLETS RECEIVED.

Hair as a Suture and Ligature. By John T. Darby, M.D. Pamphlet, pp. 20. Extracted from the *Richmond and Louisville Medical Journal* for Sept. 1870.

The Causation, Course, and Treatment of Reflex Insanity in Women. By Horatio Robinson Storer, M.D., LL.B., etc. 12mo, pp. 236. Boston, Lee & Shepard, 1871.

Report of a Special Committee of the Medical Society of the District of Columbia upon the Claims of Homœopathic and other Irregular Practitioners for Professional Recognition in the Medical Service of the United States Government, and the Charges brought by the Homœopaths against the United States Commissioner of Army and Navy Pensions. Pamphlet, pp. 8.

Seventh Annual Report of the Board of State Charities of Massachusetts, to which are added the Reports of its Several Officers. 8vo, pp. cxiv., 468. Boston, 1871.

The Philadelphia Medical Register and Directory. Edited by John H. Packard, M.D., etc. 16mo, pp. 330. Philadelphia, Collins, Printer, 1871.

Chemistry, General, Medical, and Pharmaceutical, including the Chemistry of the U.S. Pharmacopœia. A Manual on the General Principles of the Science; and their Applications to Medicine and Pharmacy. By John Attfield, Ph.D., F.C.S., etc. From the Second and Enlarged English Edition, revised by the Author. 12mo, pp. xi., 552. Philadelphia, Henry C. Lea, 1871.

GLEANINGS FROM OUR EXCHANGES.

CILIARY MOVEMENT.—In *The Academy*, No. 18, for February 15, we find an abstract of Prof. Ernst Haeckel's account of this subject, with his own observations, as contained in his most recent work, *Biologische Studien*. The most recent investigations—those of Dr. W. Engelmann (*Jenaische Zeitschrift*, 1868, vol. iv. p. 321), as also the earlier ones of Dr. M. Roth (*Virchow's Archiv.*, Bd. 37, p. 184)—have shown that, physiologically, the ciliary movement is much more nearly related to the amoeboid than to the muscular. Prof. H.'s own observations show that the ciliary is a mere modification of the amoeboid movement of protoplasm. Ciliated cells are of two kinds. In the one (epithelium flagellatum) each cell is provided with a single long flagellum or lash,—sponges possess only this kind; in the other (epithelium ciliatum), numerous hair-like appendages take the place of the flagellum. This is the kind found in most higher animals. The old notion that the cilia are attached to the outside of the cell-membrane must now be set aside, since probably most ciliated cells are destitute of a membrane, and the appendages, whether flagella or cilia, are direct processes of the protoplasm. Prof. H.'s observations on lower organisms during the past year have led him to conclude that ciliated cells arise directly by the transmutation of amoeboid cells. This he has observed in the case of the motus flagellaris, in *Monera*, such

as *Protomyxa anurantica* and *Protomonas Huxleyi*. The swarm spores of these species, when they leave the parent cyst, are pear-shaped, with a single long, hair-like flagellum, by the lashing movement of which they swim about. After a time they settle, whereupon the flagellum becomes an amoeboid process. These are merely cytods; but the same phenomenon has been observed in the case of swarm spores with a nucleus,—i.e. real cells,—and described by De Bary in his monograph of the *Mynomycetæ*. The same thing was seen by Haeckel (at Bergen, Norway, in August and September, 1869) in the epithelial cells of the sponges of the order *Leucosellaria*. The most interesting observations of the Professor were, however, made in the Canary island Lanzarote. Here he observed the direct origin of the motus ciliaris from amoeboid protoplasmic movement, first, in the spherical masses arising from the division of the egg in the *Siphonophera*; second, in a new and remarkable form which he has discovered, which he calls *Magosphaera planula*, and considers as representing a new and separate group of the kingdom *Protistæ*. This creature has a ball-like body, consisting of pear-shaped cells, bedecked with many cilia. These cells can be seen not only to develop out of amoeboid cells, but subsequently to reassume that condition. For after the ciliated ball has swum about for some time, its component ciliated cells separate and gradually pass into an amoeba form. These observations of Prof. Haeckel's are important not only physiologically, but also as of classificatory (*sic*) value, as showing that the possession of cilia, as opposed to the exhibition of amoeboid movement, must no longer be considered as a ground for placing the infusoria in a separate group.

MUCOUS DISEASE.—In a paper read before the British Medical Association (*British Medical Journal*, February 11 and 18), Mr. Whitehead, of Manchester, calls attention to a disease which, notwithstanding that it has received various names, has been very imperfectly described. Its principal characteristic is the production of mucus, either in an abnormal condition or in an excessive quantity, on most, if not all, mucous surfaces. While any mucous membrane may be affected, that of the bowel appears to be so most frequently; and mucus is discharged with the stools, either—1, as masses of more or less inspissated mucus having the appearance of coloma or jelly, or—2, as tubular casts of the gut, which are veritable cylindrical sheaths, and also as membranous shreds and flakes of various forms, which can be shown to be nothing more than fragments of the tubes in various stages of development, or—3, as membranous shreds of lymph, mixed with blood and pus. This form contains albumen and fibrin in abundance,—the latter a fibrillated form. The tissue of these membranes consists of an elastic, transparent, and structureless matrix, in which are imbedded great numbers of spherical and cylindrical cells, the debris of these cells, free nuclei, crystals of ammonio-phosphate of magnesia, and particles of undigested food. They are voided in lengths varying from a few inches to four feet. They may be one-twentieth to one-sixteenth of an inch in thickness.

This hypersecretion of mucus is independent of inflammation, and indicates a want of balance between nerve-force and germinal matter, and tends, of course, to prevent the healthy performance of the functions of the part. It is excited by numerous causes, and may occur at any time of life, but it is said that middle-aged persons, children, and old persons are liable to it in the order in which they are enumerated. It is more frequent in women than men, and is especially prevalent in damp climates. It may be produced by constipation, and is not unfrequently induced by the use of drastic purges. The following is the account given of the symptoms.

The invasion and early progress of this disease are most insidious. The skin is dull and sallow or swarthy-looking, or else it is of an artificial, waxy clearness. It is often clammy or greasy, and acts but imperfectly. Eruptions of various descriptions are far from uncommon, and would appear at times to be vicarious of the internal mucous phenomena. The lips and gums are generally pale; the tongue is moist, pale, and flabby, often swollen and indented by the teeth, sometimes red and irritable. The mucous coating of the tongue often peels off in patches, leaving the surface underneath raw and tender. Small ulcers are frequently met with on the

tongue, and also on the insides of the lips, cheeks, and gums, and even on the fauces, pharynx, and posterior nares. When these latter localities are implicated in this manner, violent headaches are always experienced. The pulse is weaker and slower than natural. The patient's subjective complaints are legion. The action of the bowels is rarely normal; they are almost always constipated, but diarrhoea may sometimes alternate with constipation. With regard to the formation, exfoliation, and discharge of these mucous structures, it would appear that in each case they observe a regular periodicity,—that the exfoliation is critical, and is always followed by an immediate amelioration of the symptoms, which intensify up to that event. The patient is usually conscious of the formation of each fresh crop, and describes it as a gathering in some part of the abdomen,—generally the lower part of either lumbar region. At other times, the feeling is only one of heat and rawness.

In the treatment of the disease, drastic purgatives are to be avoided. Alkaline enemata may be employed to remove the accumulation of mucus, and its reformation may be prevented by injections of nitrate of silver. To allay nervous irritation and reinvigorate the strength, bromide of potassium, in increasing doses, and the *mistura ferri composita*, may be given. The skin is to be kept in good condition. The diet is to be regulated and restricted, it being a great mistake to suppose that a large amount of strengthening food is required by the patient. Liquid food, excepting milk, aggravates, in the majority of cases, every symptom; sugar is invariably hurtful; tea, coffee, and alcohol,—Burgundy being the only wine from which benefit has ever been derived,—vegetables, and fruit, also, prove injurious.

In the same journal for March 11, Dr. George Hunter says that of the four cases of this disease that he had seen, three occurred in patients with a movable kidney.

MISCELLANY.

THE Surgeon-General of the Navy, in accordance with Article VI. of its by-laws, has appointed Surgeons Philip Lansdale, John M. Browne, John Y. Taylor, and David Kiddleberger delegates from the naval medical staff to the American Medical Association which meets May 2 in San Francisco.

Rumor says that the Secretary of the Navy, whose authority in the matter is not recognized by the Association, has accredited Surgeon N. Pinkney also as a representative of the medical staff of the Navy.

THE STATE INSANE ASYLUM.—Drs. John L. Atlee, of Lancaster, and Traill Green, of Northampton, with Mr. D. W. Gross, of Lancaster, have been duly appointed Trustees of the State Insane Asylum at Harrisburg.

ANÆSTHESIA AGAIN.—Our readers are probably aware that a "Morton Testimonial Fund" is in process of raising, under the auspices of a number of the medical profession in Boston, who are persuaded that the honor of the discovery of anæsthesia is due to their late townsman, Dr. W. T. G. Morton.

On the other hand, a monument is projected in Hartford, Connecticut, to the memory of Dr. Horace Wells, of that place, who, it is claimed, was the real inventor of the use of ether to allay the pain of surgical operations.

MÜTTER LECTURESHIP.—Dr. J. Solis Cohen has been appointed by the College of Physicians of Philadelphia to deliver the next course of lectures under the provisions of the Mütter bequest. The subject will be "Surgical Affections of the Air-Passages;" the time of the delivery of the course has not yet been fixed.

REMOVALS.—Dr. Frederick W. Lewis has removed to No. 1433 Poplar St.; Dr. Louis A. Duhring, to No. 127 South Eighteenth St.

PROF. OPOLZER'S CLINIQUE.—"The opening scene of Prof. Oppolzer's ward in the Vienna University reminds one of a raid of Prussian Uhlans, two hundred and fifty strong, each putting forth his energy and strength to gain a foothold within hearing-distance of the teacher. The outdoor students that throng his ward every morning are a motley group of all nations; but the most numerous and peculiar of all are the Polish Jews. Among the fraternity, with their two flowing curls, one pendent before either ear, with their velvet skull-caps, and their black coats almost trailing, one not unfrequently finds a brother from Jerusalem, from Turkey, or even from Arabia. Precisely at nine in winter and seven in summer, Prof. Oppolzer's slight, tall, and somewhat bent form is seen entering the hospital, his step a little tottering and feeble. The most important case presented becomes the theme of the morning lecture, and instead of one hour he frequently stays three."

MEMORIALS TO THE LATE SIR JAMES Y. SIMPSON.—It seems likely that these memorials will be the erection of a marble bust in Westminster Abbey, and of a monument and statue in Edinburgh, together with the institution of a hospital for the diseases of women in the last-named city. Similar hospitals will be established in London and Dublin also, if the funds can be obtained.

CONSUMPTION OF CHLORAL.—From the *New York Medical Journal* we learn that ten tons of chloral were imported, it is said, into England from Germany during the past year. The price, at first, was £5 a pound; it is now selling at less than five shillings a pound. There being no duty on alcohol in Germany, the materials required for the manufacture of chloral being only alcohol and chlorine, there can be no competition with the manufacture there.

COMPENSATION IN RAILWAY ACCIDENTS.—It is stated in the *British Medical Journal* of March 11 that "in an important railway case tried lately, the Lord Chief Justice said that he was in the habit of suggesting, in actions on account of railway accidents where there was a conflict of opinion between the medical men as to the period of the sufferer's recovery, that a maximum sum should be given on the worst view of the case, to be reduced *pro rata* after an examination by a medical man at the end of the period named for probable recovery, if the patient were in a better state of health; but that if he remained in the same state, then the damages should stand. The suggestion was adopted."

RADICAL CURE FOR COLIC.—We cannot forbear reproducing the following gem, which has been going the rounds for some time, for the benefit of our readers:

"Dr. B. R. Westfall, of Macomb, Ill., had a patient, a Mrs. H., living eight miles from Macomb, who had been for several years previous to September, 1867, subject to terrible attacks of bilious colic. On account of the distance and their severity, the doctor had taught her to treat them herself; but on September 17, 1867, being suddenly summoned, and thinking to relieve rather than save her," (!) "he made an incision and cut out about five and a half inches of intestine, and brought the cut ends in contact so that they grew together. The wound healed in about four months, and her recovery was perfect. Her health is now good; she does the housework for a large family, and has never had another attack of colic."

Some trifling particulars are wanting in this account, such as the place and extent of incision, and the ground for removal of a portion of intestine. As it stands, it seems as if "heroic" practice" were scarcely a strong enough term for this surgical feat.

THE FEMALE MEDICAL STUDENTS IN EDINBURGH.—The prize list of the Edinburgh extra-academical school for the session recently ended has a novel character in the presence of the names of several ladies among those of the successful competitors. In Dr. Handyside's class of Anatomy, the names of Matilda C. Chaplin, Mary Edith Pechy, and Helen Evans appear as recipients of four out of fourteen certificates of merit; and in Dr. Watson's junior class of Surgery, Isabel Thorne and Matilda C. Chaplin are noted as having gained prizes.

RETIREMENT OF MR. COCK.—After a long and faithful performance of duties at Guy's Hospital, Mr. Edward Cock retires from his office of Senior Surgeon. It is intended by his old pupils and friends to present him with a testimonial on the occasion of his retirement.

MORTALITY OF PHILADELPHIA.—The following reports are condensed from the records at the Health Office:

| | For the week ending | | |
|--|---------------------|----------|----------|
| | Apr. 8. | Apr. 15. | Apr. 22. |
| Consumption | 62 | 53 | 48 |
| Other Diseases of Respiratory Organs | 31 | 36 | 33 |
| Diseases of Brain and Nervous System | 54 | 48 | 41 |
| Debility | 13 | 17 | 10 |
| Marasmus | 12 | 3 | 14 |
| Old Age | 9 | 14 | 19 |
| Diseases of Abdominal Organs | 27 | 33 | 21 |
| Zymotic Diseases | 23 | 24 | 21 |
| Diseases of Organs of Circulation | 13 | 15 | 17 |
| Cancer | 6 | 6 | 1 |
| Scrofula | 2 | 1 | 2 |
| Syphilis | 1 | 1 | 0 |
| Stillborn | 18 | 12 | 10 |
| Casualties | 4 | 4 | 12 |
| Murder | 1 | 0 | 0 |
| Suicide | 1 | 0 | 0 |
| Intemperance | 0 | 0 | 5 |
| Unclassifiable | 11 | 8 | 11 |
| Unknown | 2 | 2 | 3 |
| Totals | 290 | 277 | 268 |
| Adults | 147 | 165 | 161 |
| Minors | 143 | 112 | 107 |

OFFICIAL LIST

OF CHANGES OF STATIONS AND DUTIES OF OFFICERS OF THE MEDICAL DEPARTMENT U. S. ARMY, FROM APRIL 5, 1871, TO APRIL 18, 1871, INCLUSIVE.

RANDOLPH, JOHN F., SURGEON.—By S. O. 136, War Department, A. G. O., April 5, 1871, in addition to his present duty as Attending-Surgeon at New Orleans, La., to assume the duties of Acting Assistant Medical Purveyor and Medical Storekeeper.

CLEMENTS, B. A., SURGEON.—By S. O. 62, Headquarters Department of Texas, March 30, 1871, the telegraphic instructions of 21st inst., granting him *thirty days'* leave of absence, with permission to leave the limits of the Department, are confirmed.

DAVIS, P. C., SURGEON.—By S. O. 71, Headquarters Department of Dakota, April 6, 1871, relieved at Fort Benton, Montana Territory, to accompany battalion of Seventh Infantry from that post to Fort Shaw, Montana Territory, and, on arrival, report for duty as Post-Surgeon.

BROOKE, JOHN, ASSISTANT-SURGEON.—By S. O. 73, c. s., Department of the East, on being relieved by Assistant-Surgeon Lippincott, to comply with S. O. 109, c. s., from A. G. O., transferring him to the Department of the Columbia.

LIPPINCOTT, H., ASSISTANT-SURGEON.—By S. O. 73, Headquarters Department of the East, April 11, 1871, assigned to duty as Post-Surgeon at Raleigh, N. C.

CHERBONNIER, A. V., MEDICAL STOREKEEPER.—By S. O. 136, c. s., A. G. O., as soon as the Medical Purveying Depot at Santa Fe, N. M., is closed, to repair to Washington, D. C., and report to the Surgeon-General for orders.

O'DONNOGHUE, F., MEDICAL STOREKEEPER.—By S. O. 136, c. s., A. G. O., relieved at New Orleans, La., and to report in person to Lieutenant-Colonel Charles Sutherland, Acting Chief Medical Purveyor, New York City, relieving Capt. George Wright as Medical Storekeeper.